January 20, 1962
Vol. 162 — No. 3

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

"Cheechakos" on tour of Alaska after state telephone convention included prominent Independents shown in this photo taken at Point Barrow. Left to right: A Barrow Eskimo; Hugh A. Barnhart, Rochester, Ind.; Mrs. Barnhart; C. C. Pearce, Riceville, Ia.; Diane Pearce, and Mrs. Pearce. At far right another Eskimo. See page 24.

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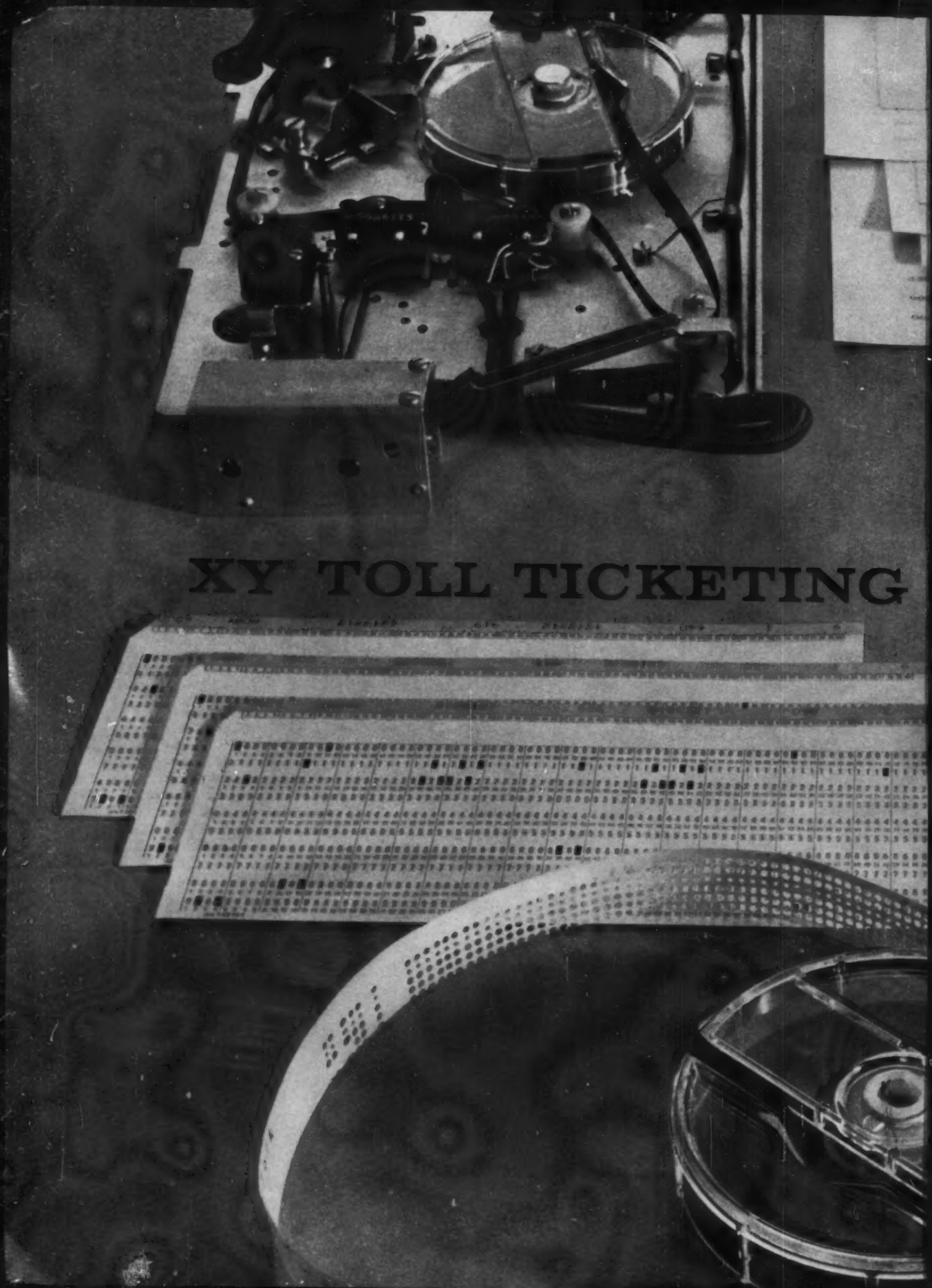
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FLASHES AND PLUGS

ONE THING AT A TIME. According to a letter to the editor of the San Juan (Puerto Rico) "Star", this really happened:

A young lad looked over his Dad's shoulder as he scanned the front page of the San Juan "Star". He saw a photograph.

"Daddy, what's that?"

"That? That, son, is a telephone."

"Whose is it?"

"It belongs to someone special—The President of the United States. They're installing it for him in La Fortaleza."

"Daddy, when I grow up, can I be President?"

The father put his paper down, looked at his boy, and said, very seriously:

"My boy, one of the oldest, most cherished traditions of our wonderful democracy is that any lad, such as you, may one day grow up to be President. In our land, anything is possible."

"And when I grow up, will I have a telephone?"

"Listen," Daddy snapped, "you'd better drop these silly daydreams of yours! You just get to be President first. Then we'll see."

•

COMPELLING SUMMONS. The telephone is irresistible to most people, a New York psychoanalyst has discovered.

He cited, as an example, the day a patient's wife telephoned him to report that her husband, suicide bent, was half-way out of the window.

She asked him what she should do. Said the analyst: "Tell him to come to the telephone."

The man couldn't resist. He left the window and went to see who wanted to talk to him.—AT&T's "Long Lines."

•

WITH WATER WINGS OR HELICOPTER? Of the many stories related to the structures built by the late Frank Lloyd Wright, distinguished architect, there is this one involving a telephone call to Wright from a client who had just moved into one of the homes designed by Wright.

It was a rainy night, and the architect was waked in the middle of the night.

"There's a leak in the roof, and the living room is flooded," complained the householder, "What shall I do?"

"Rise above it," answered the philosophical Wright.

•

HOW ABOUT A TRUMPET FOR "TAPS"? A Dutchman was explaining the red, white and blue of the Netherlands' flag to a visiting American.

"Our flag has a connection with taxes," he explained. "We get red when we talk about them, white when we get our tax bill and pay them till we are blue in the face."

"That's just how it is in the United States," commented the American, "—only we see stars, too!"—from "The Trading Post" of New Jersey Bell Telephone Co.

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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

SINCE 1901

January 20, 1962

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H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • LAWRENCE J. HOGAN, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • PAUL E. MURPHY, *Electronics Editor* • WINNIE BURNETT, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager*.

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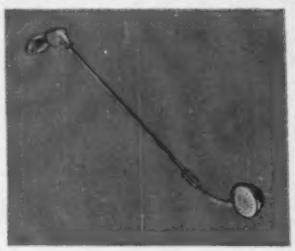
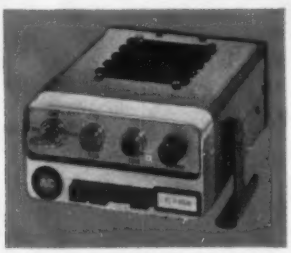


Boom-Mounted Microphone, fastened to side roof rail, swings up and out of way when not in use.



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The new AC "HANDS-FREE" AChieverfone makes telephoning from any car, truck, bus or boat safe and easy. New swing-away boom microphone, foot-operated talk switch, and speaker built into the control unit let the driver talk and listen —with both hands on the wheel.

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Other services of this alternate system are the same as the 40M and 80M—with two exceptions. Station-metering and restricted night calling are not available.

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- FILE PHONE CONVERSATIONS

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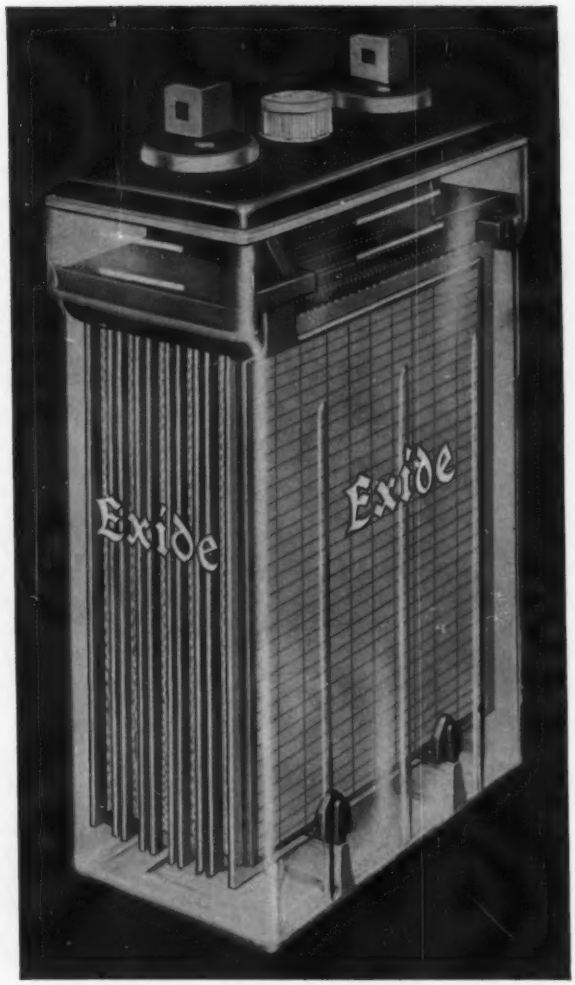
A Division of International Telephone & Telegraph Corp.
6650 South Cicero Avenue, Chicago 38, Ill.
Attention: Marketing Department

NEW STATIONARY BATTERY OFFERS 20 YEARS' LIFE AT A PASTED PLATE BATTERY PRICE



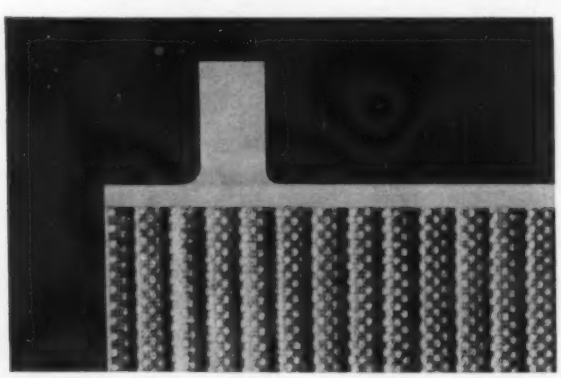
There are only two ways you could get a more economical stationary battery than the new Exide-Ironclad. Get one with longer life for the same price. Or get one with the same life at a lower price. We don't think either is possible.

This is a battery designed for 20-year life potential. Yet it is priced right down at the level you would expect to pay for a pasted plate battery. It saves you money in the two most important ways: low original price and low annual cost.

Compare an Exide-Ironclad with other stationary batteries and you'll notice something else too. It's lighter—saves you up to 50% on shipping charges and floor loading. And it's more compact—saves up to 50% of floor space needed for your battery. Translate that into additional annual dollars and cents saved.

The Exide-Ironclad tubular positive plate battery was originally designed for tough cycling applications such as electrically powered trucks. During the past 20 years, its long life potential in stationary service has been proven by actual application experience. This new battery, however, is a new basic design and incorporates new features for stationary use that make it vastly superior — with even longer life potential and greater dependability.

The complete Exide battery line for telephone service also includes the pasted plate Exide-Tytex with Silvium* or calcium grids, the long-life Exide-Manchex Planté Battery, and the low-maintenance pocket positive nickel-cadmium. Only Exide offers so broad a line to meet your needs.



The Exide-Ironclad positive plate — Active material is held firmly captive inside the square-shaped tubes—in good contact with the corrosion-resistant Silvium grid. Thousands of tiny openings give free access to electrolyte, prevent escape of active material. This unique construction results in long battery life, plus more power per pound of material and unit of volume than any other stationary battery.

For maximum economy—the Exide Power Package

There are three parts to your total battery expense: the battery itself, the rectifier, and service required. Exide offers this complete power package from one dependable source. You get the battery you need, the rectifier to meet your battery requirements, and the service of factory trained, factory-supervised technicians to keep both battery and rectifier in top condition. Write for complete information. Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

*Silvium is Exide's patented grid alloy, proved up to 100% more corrosion resistant than regular lead-antimony grids.

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The Electric Storage Battery Company (ESB)

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spray cleaner, disinfectant, deodorizer; especially adaptable for cleaning, disinfecting and deodorizing telephone receivers and transmitter caps. Code GDC-1. 12 - 16 oz. bombs per case.

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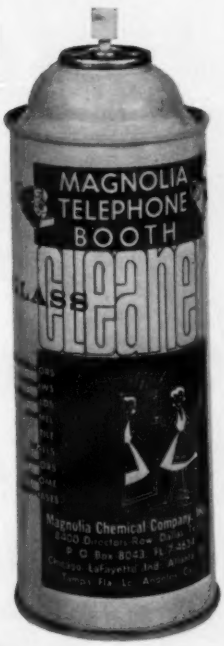
easily dissolves smudge, film, scum, smear. It's new! It's economical to use on telephone booths. Code GC-3. 12 - 15 oz. bombs per case.



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Just think of it. A written message transmitted with the speed and dependability of a phone call! What businessman could resist this useful, time-saving instrument?

With Electrowriter, your customer simply writes or sketches his message just as he would any note —using an ordinary ball pen and paper. Instantly, that message is reproduced by any desired number of receivers, any distance away.

Electrowriter systems use regular telephone lines for transmission. That means greater use of your existing facilities, installation of new facilities... more revenue! And, Electrowriter is simple to install. Each instrument is fully transistorized and self-contained. No special power supply is required.

Who are prospects for Electrowriter? Restaurants, hotels, transportation companies and any plant that needs a better system of inventory or production control. Your AE representative has the full story on Electrowriter. For further details, contact him, or write: Automatic Electric Sales Corporation, Northlake, Illinois.

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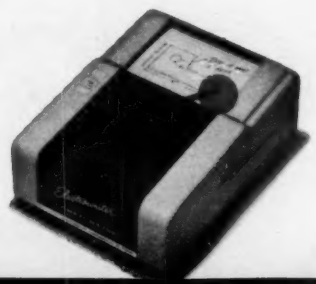
GENERAL SYSTEM



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Youths Learn at Helm

"THERE IS STILL no real understanding of the system of free enterprise among the population generally—and no wonder if we pay attention only to its scandals and excesses."

These words were spoken recently by Dr. Vannevar Bush, under whom the entire World War II scientific effort of the United States had been gathered.

Dr. Bush made an important point—that people who do not understand the workings of their own superior economic system are poorly equipped to resist the inroads of opposing political-economic ideologies, whose advocates are only too eager to twist and distort the meanings of capitalism into a hideous caricature.

For this reason, even if there were no other, the Junior Achievement program justly deserves the recognition it will be given during National Junior Achievement Week, Jan. 28-Feb. 4. With the help of volunteer advisers from the ranks of business and industry, this program teaches teenagers how our corporate economy works by letting them form and operate actual businesses.

They state their purposes, receive a charter, issue and sell stock, sink their capital into the tools of production, and begin making products that they *hope* are salable. Then they sell—*if* they have a good quality product that people want, price it competitively, and if they work hard enough marketing it.

These pint-sized companies keep books, pay salaries, commissions, taxes, rentals, and raw material costs. If there's enough left after expenses, they also pay dividends to the people who bought their stock to provide the capital the J. A. firms needed to start operating. Some of the youths learn, much less painfully than they could later on, what is perhaps an even more valuable lesson—how easy it is for a company to go broke in a competitive system.

When their companies are finally disbanded—after nine months of operation, these adolescents have gained an experience that no textbook could give them.

They don't know all about free enterprise, of course. But they have grappled with its fundamentals. They are no easy mark for the slick confidence men selling special interests or half-baked reform systems. And they can be competent salesmen, themselves, of a system they have learned by doing.

This country of ours has some competent young, strong hands, stretched out confidently to receive and augment their proud heritage.

——JUNIOR ACHIEVEMENT.

IN THE NATION'S CAPITAL

BY LAWRENCE J. HOGAN, WASHINGTON EDITOR
and President, Larry Hogan Associates,
Public Relations Firm.

President's State of the Union message refers to two items of immediate interest to telephone industry—(1) a forthcoming measure to govern the financing and operation of satellite communications system, and (2) extension of present excise taxes. AT&T satellite moves toward launching pad. Kerr's space communications bill, calling for private enterprise operations, introduced.

PRESIDENT Kennedy's State of the Union message encompasses a broad spectrum of legislative proposals.

In speaking of the President's speech, Sen. Mike Mansfield (D., Mont.) said it "had the authentic earmark of greatness." The spokesman from the other side of the aisle, Sen. Everett M. Dirksen (R., Ill.), said it reminded him of a "Sears, Roebuck catalog with the old prices marked up." New House Majority Leader Carl Albert (D., Okla.) referred to it as "the finest State of the Union message I have ever heard." But Sen. Homer Capehart (R., Ind.) called it "the weakest message I have listened to in my 18 years in the Senate."

Obviously, the items which the President mentioned were described very briefly. In the months ahead he will send special messages to Congress specifically dealing with each proposal. After these messages are forwarded to the legislative branch, bills will be introduced on behalf of the administration and then referred to committees for study and recommendation. Some bills, left over from the first session of the 87th Congress, are still in the hands of various committees.

THE LABYRINTHIAN process has many pitfalls and stumbling blocks before both houses pass a bill and forward it to the White House for the Chief Executive's signature. One thing is certain: The President won't get all of the programs he is asking for and some of his proposals which will be passed will be watered down during the legislative filtering system.

An analysis of the recommendations makes one wonder how the President plans to keep to his promise of a balanced budget for fiscal year 1963 in view of the broad spending proposals he outlined. If he gets what he wants by way of legislation—and this is a big "if"—and manages to keep the budget in balance, it will be one of the best juggling acts in history. He proposed to accomplish this feat by (1) an increase in postal rates; (2) passage of tax reforms to remove "unwarranted tax preferences and to apply to dividends and interest the same withholding requirement we have long applied to wages", and (3) extension of the present excise and corporation tax rates, except for changes affecting transportation.

This means that telephone companies can look forward to another apology by the occupant of the White House about the necessity for continuing the 10 per cent telephone tax.

TEN OF THESE special messages regarding legislation are now in preparation at the White House. The message elaborating on the communications satellite program is expected to be sent to Capitol Hill sometime in the spring.

In referring to this subject in his speech, the President said that he will "send to the Congress a measure to govern the financing and operation of an International Communications Satellite System in a manner consistent with the public interest and our foreign policy." There is much speculation about what his interpretation will be of what is "consistent with the public interest." It seems probable he will recommend a different approach than he suggested originally.

Although the President did not specifically refer to telephone loans, he promised "expanded REA generation and transmission loans," a program to which his administration is committed.

Included in his proposals was the controversial 8 per cent tax credit for investment in machinery and equipment coupled with "planned revisions of depreciation allowances." He expressed the hope that this would "spur our modernization, our growth and our ability to compete abroad."

THREE ITEMS which are bound to give the Chief Executive congressional trouble are his recommendations (1) asking for presidential authority "to adjust personal income tax rates downward within a specified range and time to slow down an economic decline before it has dragged us down"; (2) presidential authority to accelerate federal and federally aided capital improvement programs when there is a given rise in unemployment; and (3) his "new approach" to American trade policy which would include a request for the power to cut import duties by as much as fifty per cent.

The reason for trouble in these areas should be obvious. Congress jealously and zealously guards its own scope of responsibility and doesn't view kindly any moves to diminish the power of Congress. This is as it should be. The U. S. Constitution, which has kept our ship of state on course throughout our history, wisely provided for a distinct separation of powers between the Executive, Legislative and Judicial branches of our Federal Government. The collection and disbursement of funds rightly belong within the authority of Congress. You may be sure that a great many representatives and senators on both sides of the aisle will oppose surrendering any of these powers to the President.

THERE MAY be some sound administrative reasons for points two and three enumerated above, but the request for authority to lower income

taxes during times of economic decline seems totally unnecessary. If a bill were introduced to reduce income taxes when the same was feasible, few legislators, anticipating the delight of their constituents, would possibly vote against it. Such a bill could be enacted with almost as much dispatch as the President could issue a directive.

As indicated in these pages previously, the second session of the 87th Congress is shaping up as a very interesting legislative contest, and the President's State of the Union message has charted its guidelines.

The fact that one-third of the Senate and the entire House of Representatives is up for re-election this year will unquestionably make things more interesting and will have a significant effect on the success of the administration's legislative program.

AT&T Satellite Nears Launching

AT&T's space communications center is being modified for a communications space satellite launching in the Spring. The station facility which is located near Holmdel, N. J., was used in the ECHO satellite tests conducted during 1960. ECHO reflected only one two-way telephone call at a time but the new three-foot Bell satellite dubbed "Telstar I" will relay a signal capable of carrying hundreds of voice or data channels or one live television program from 3,000 miles above the earth.

Signals will be sent from Bell's ground station near Andover, Me., intercepted and amplified by Telstar I and sent back to Holmdel's receiving equipment. The modification of the Holmdel station is to improve its "hearing" facility and to install equipment capable of transmitting television signals.

Kerr's Space Bill In Hopper

Sen. Robert S. Kerr (D., Okla.) has introduced his proposal to give impetus to the satellite communication program (previously reported in this column).

This bill is Kerr's own proposal, not the one which the President referred to in his State of the Union message. Under the Kerr plan other nations would be invited to participate in the system and ownership of the U. S. share in the system would be held by a corporation capitalized at a half billion dollars. Five thousand shares would be sold at $100,000 each and participating companies would be required to hold at least five shares. FCC would control rates charged and would supervise the transfer of stock ownership. NASA would furnish the satellites and launching facilities for the system.

Convention Calendar

1962

Association	*Date*	*City*	*Hotel*
Minnesota	Feb. 25, 26, 27 and 28	Minneapolis	Radisson
Louisiana	Feb. 28; Mar. 1	New Orleans	Monteleone
Kentucky	Mar. 6	Lexington	Phoenix
Texas	Mar. 11, 12 and 13	Dallas	Sheraton-Dallas
Iowa	Mar. 19 and 20	Cedar Rapids	Roosevelt
Ohio	Apr. 3 and 4	Columbus	Deshler Hilton
Nebraska	Apr. 18 and 19	Omaha	Sheraton-Fontenelle
Wisconsin	May 8 and 9	Milwaukee	Plankinton
Indiana	May 9 and 10	Indianapolis	Claypool
Kansas-Missouri*	May 21 and 22	Kansas City, Kan.	Town House
Illinois	May 24 and 25	Springfield	Abraham Lincoln
Pennsylvania	June 4, 5 and 6	Bedford	Bedford Springs
New York	June 11, 12 and 13	Whiteface	White Face Inn on Lake Placid
California	June 13 and 14	San Francisco	Jack Tar
Washington-Oregon*	June 21 and 22	Portland, Ore.	Sheraton
Arkansas	Sept. 10 and 11	Hot Springs	Arlington Hotel
Michigan	Sept. 18, 19 and 20	Lansing	Jack Tar
Rocky Mountain	Sept. 19, 20 and 21	Salt Lake City, Utah	Utah Hotel Motor Lodge
New England	Oct. 1, 2 and 3	Poland, Me.	Poland Spring Hotel
USITA	Oct. 22, 23, and 24	Chicago	Conrad Hilton
Oklahoma	Nov. 14 and 15	Oklahoma City	Skirvin

*Joint meeting

FCC To Back UHF Bill

A new horizon for telephone service to the television industry appears in the offing if Congress enacts a bill which the administration will recommend.

FCC Chairman Newton N. Minow told the National Press Club in Washington on Jan. 11 that his agency will seek legislation this year which would require television manufacturers to include all-channel receivers in TV sets destined for interstate shipment, (i.e. all sets). He called the plan "the key to the promise of television."

AT THE PRESENT time most television sets are capable of receiving only 12 channels, but under the FCC proposal this capability would be expanded to 82 channels, opening up the ultra high frequency (UHF) band from channel 14 through 83. Most commercial broadcasting is on the very high frequencies (VHF) channels 1 through 12. Most educational stations on the other hand are on the UHF band which cannot be received in most conventional sets without special adapters which cost about $25. (If built into the sets at the point of manufacture they would undoubtedly cost less.)

Minow advanced several arguments in support of his position. In most areas the 12 VHF frequencies are saturated and new stations cannot be licensed in those areas without running the risk of interference with existing stations. In many cases an area might be able to support another station on the UHF band without any interference with existing VHF stations if a market for UHF could be created.

Because most TV receivers are tuned to only VHF channels, investors understandably shy away from UHF stations. In most areas, UHF offers the only facilities available for educational TV which Minow and most other people feel should be further developed. The telephone industry is particularly interested in educational TV.

MINOW SAID the band limitation has resulted in nearly half of the nation's 272 television audience areas having only one station. Sixty-nine have only two, 54 have three and only 17 have four or more.

He observed that 55 million television sets are now in use in this country and the average family spends 5 1/2 hours per day watching TV. (More

(Continued on page 41)

The PUBLIC RELATIONS Of UTILITY REGULATION

By FRANCIS X. WELCH*

IT IS A VERY good thing for public relations people, now and then, to get away from the trees of day-to-day operations and consider the forest of over-all objectives. Public utility regulation, like other aspects of utility operation, tends to become so much a matter of routine, so taken for granted, that sometimes basic concepts become blurred if not confused. So, I would like to start off this discussion by asking (and trying to answer) some very, very fundamental questions about regulation:

What is it?

Why is it?

How does it operate?

Who should know about it? (And how much?)

Taken For Granted

Now, you have got to admit that you could not get much more basic than these questions. And yet it is astonishing how many public relations people, and even some top management people, stumble over these disarmingly simple questions. Why? Because they take regulation in the same way New Yorkers take the Empire State Building or the Statute of Liberty, or as Washingtonians take the Capitol or Monument—as something that is simply there, has been there for a long, long time, and presumably will always be there! They fail to realize the importance of that periodical re-examination of primary purpose which is implicit in those simple words: What, why, how, who.

Let us take that last one first, because it provides the incentive, so to speak, for public relations people to compare notes. Who should know about regulation? Maybe I could bring the question closer to home by rephrasing it in terms of self-interest. What is in it for me?

Now let me make this point. There is real money in it for all public utility people in knowing about regulation—what it is, why it is, and how it works. There are MILLIONS in it, literally. Or conversely, a company could forfeit millions to which it might otherwise be entitled if its people do not know as much about regulation as they should.

PR Peoples' Responsibility

All right! Does everybody in the company have to know all about regulation? Obviously not. But the public relations people have a *double* responsibility, not only to understand the regulation setup, so that they can do their own job properly and know what is going on—but you also have, as I view it, an obligation to see that others in the company—each level according to its own needs and requirements—know about this.

Now it is not my function to tell any company people what their duties are. The boss will attend to that. I can only present the problem as I see it.

Obviously, not every utility employe needs to know *all* about regulation, if that were possible. Unskilled workers, and some others who have no contact with the public, might be excused from any requirement for instruction. Going in the other direction, we may assume that the chief executive and top-level officers know what is needed to protect the company's interest. It is in this middle area of management that I have found a most deplorable ignorance of regulation—a situation which I believe can result in very great damage public relationswise to a gas or other utility. Going further down the line, it is my belief that meter readers, installation men, and others who have customer contacts, should be in a position to answer simple questions, such as the fact that the company's rates are regulated by a government agency and that it cannot charge as much as it pleases or fix its own rates. I know there is a difference of opinion here, between different company managements, as to whether an employe at this level would not do more harm than good if he tries to answer such questions, and whether he would not be better off if he had some list of references in his pocket to direct the customer to call—about service, or rates, or company expenditures, or policy.

Can Make Bad Impression

Personally, I think that every employe who has contact with the customer should have some elementary instruction about regulation—even if it is only the answers to a dozen or so questions most frequently asked. I think it makes a bad impression, public relationswise, if the employe clams up and passes the buck on a simple question. But I will not argue, here,

*Mr. Welch is Editor of "Public Utilities Fortnightly." He presented this address at the recent American Gas Association's Public Relations Workshop held in Milwaukee, Wis.

about which way the particular company wants to handle the problem as long as it handles it *some* way—either by instruction or by reference or a combination of both. Otherwise, you would have a situation, which may actually happen more often than you think, where an irritated housewife jumps a meter reader or installation man with a charge such as, "You know your company gets too much money for the lousy service you give!" And the employe, in a mistaken attempt to be either gallant or amiable says: "Yeah, I think you're right, ma'm!"

Let us take up next the simple question—Why? Just why do we need regulation? What, in a general way, was the big idea in the first place? What is it supposed to accomplish?

Many Different Answers

Well, you can get dozens of different answers on this, even from lawyers and regulators. It is commonly said that regulation was to keep utility rates from going too high. Another frequent answer is that it was to keep utility companies from making too much money. Another explanation of regulation is that it was supposed to protect the public from exploitation by the utilities. And so on and on.

Notice that each of these answers has something to do with rates, profits, or the rate of return. They all show the all too common preoccupation with the central idea of *profit limitation*, which is implicit in the rate-fixing process. But they completely overlook the very basic and fundamental purpose of regulation.

Service is Purpose

What is the prime purpose of regulation? There is only one true answer: Service, Service, Service. That was why regulation was started in the Nineteenth Century. And that is the *only* reason why regulation was created—to assure the public of the availability of service. Of course, it *follows* from this concept of service that rates must be reasonable and kept reasonable in order to keep utility service within the reach of all segments of the public. And the rate-fixing aspect of regulation, I admit, is more complex, occupies more time and attention than the relatively simple aspect of service regulation. But to say that rate-fixing and profit control are the main purposes of regulation is to put the cart before the horse and misunderstand the circumstances which led to the creation of regulation.

Now there may still be some lingering doubt about this, so great is the fascination for the rate-fixing phase of regulation. But I can prove what I have said in two ways—once by law, and once more by logic.

As to the law I need only point out to you that all of the regulatory statutes, all of them, state and federal, alike, were originally laws for service regulation. Take the Interstate Commerce Commission Act of 1887—our oldest federal regulatory statute. When it was first enacted it contained no rate-fixing powers for the ICC at all! That did not come until later—way later, in 1906, when very limited rate-fixing powers were added. It was a

F. X. WELCH

year after that, in 1907, when the first full-powered state regulatory laws were passed in New York and in Wisconsin. Prior to that the regulatory agencies had only powers to require carriers and other utilities to provide service without discrimination.

Proof by Logic

And now I prove my statement by logic, when I say that while service regulation without rate-fixing is possible, even though we regard it as incomplete, rate regulation without service would have no meaning. In other words, you *can* conceive of a utility rendering service at an unreasonable rate but take the converse of that proposition and try to envisage a reasonable rate without any service? You can readily see what I mean when I say that public service was and is the principal objective of regulation and that rate-fixing came as a corollary and not vice versa.

This brings us back to another one of our fundamental questions—what? What is regulation? Or, more properly, what is a public utility and why does it require regulation? Now, I am not going to go back over a lot of strictly legal background about what Lord Chief Justice Hale said 300 years ago, or what the U.S. Supreme Court said 85 years ago in the Munn decision.

Let us leave those fine points to the lawyers. Suffice it to say, and by that I mean, I think I can give you enough of the whole picture of what regulation is, and what a public utility is, if I sum it up by saying that where we have a business which is so essential (you might almost say indispensable) to the life and well-being of a modern community, and where that same business, by its very nature, cannot be operated effectively and efficiently under the ordinary rules of free competition, then we have what the economists call a natural or inherent monopoly. Now watch out for those words, those phrases—"natural monopoly" and "inherent monopoly." I warn you they are traps for the unwary. They must be accepted only in a very, very limited sense; namely, an *area* monopoly! That is the key word—*area* monopoly.

Two Utilities Example

The best, or at least the clearest, illustration I can give you is the classic example of two telephone companies trying to compete with each other in the same town. This terrible situation has been wiped out, thanks to an agreement between the Bell System and the thousands of Independent telephone companies. But I can recall examples back 30 and even 20 years ago where the merchants and professional and other business people had to have two and even three telephone subscriptions with rival companies in order to be sure that they could communicate with their own clients or patrons. Obviously, such a situation could be intolerable under modern conditions. The same applies, of course, to gas and electric and transportation utilities.

Now you may question why I even spend the time on this economic concept because it seems so self-evident. But the fact is that the need for and necessity for regulation are *not* constant factors. They ebb and flow with changing economic conditions. If you do not understand this, if you do not understand why the gas, electric, and telephone companies are regulated whereas the butcher, baker, and candle stick maker are not regulated, then you do not get the true picture of regulation or of the fundamental reason why it is necessary.

Several weeks ago I was lecturing on this very point in New England to another utility management group. One of the first questions I was asked, during the question period, was why I even bothered to discuss this matter of

what is a public utility. My questioner said to me: "Look, I know the company I work for is a public utility; you know the law says it is, and the courts say it is. Why don't you just take it from there and forget about the fine distinctions which say that some other line of business may or may not be a public utility?"

Basic Reasons Involved

Well, I will tell you what I told him; namely, that you must have some degree of understanding of the basic reasons why one group of businesses—such as gas, electric, telephone, and transportation carriers—are utilities subject to regulation, while another group of businesses—such as hotels, department stores, liquor stores, theaters, etc.—are not utilities and are not regulated as such. Otherwise, you cannot possibly understand the duties, rights, and obligations which are imposed on utilities by law, and which are not imposed upon non-utility businesses.

First of all, let us keep in mind that every business—I do not care what it is—is regulated to some extent and some of those regulations may be quite special and detailed. A barber shop has to obey certain health regulations. So do restaurants. A liquor store has to obey regulations about the hours of opening and closing. A private detective agency has to obey special regulations about employing qualified operators—they must not have criminal records. Hotels and department stores must obey police and fire department regulations about elevators and fire exits as a matter of public safety. But all these fall short of what we call conventional regulation of utilities. By that I mean the full package, the whole deal of regulatory requirements and restrictions as to rates, service, certificates, accounting, and, in most cases, security issues which are imposed on utilities and not upon businesses which are not utilities.

Two Conditions Present

Now this is not a difficult concept to understand if we can only keep in mind that there must be two conditions present before any business can be validly regulated as a utility:

(1) It must be in the class or category of business which is said to be "charged with a public interest."

(2) There must be some actual legislation, some statute, which spells out the intent of the law that that particular business is to be regulated in that state as a public utility.

Now if either or both of these conditions are lacking, if it is a business which is not charged with a public interest, or if it is such a business, but the law of the state has not seen fit to declare that such a business is a utility subject to regulation, then you just do not have a utility.

Legislation—Second Condition

Let us take an example of a business which is not "charged with a public interest." (We know, of course, that the gas, electric, and telephone companies are in that class.) A theater, a gasoline filling station, a night club. These are businesses which are not so important to the community that they need to be regulated in the public interest. And if a legislature attempted to regulate them as utilities (and there have been numerous decisions on this), such laws would be struck down by the courts as unconstitutional interference with private property rights.

Let us take the second condition—legislation. We have a good example of that right over in the neighboring state of Minnesota. There, the regulatory commission has jurisdiction to regulate telephone companies, transportation carriers, and warehouses; but for reasons, which seem sufficient to the Minnesota legislature, gas and electric companies have not been regulated as utilities. Down in Iowa, none of the usual utility companies—gas, electric, or telephone—have been regulated at the state level. Somewhat the same situation exists in Nebraska and Texas, even though in just about every other state in the Union all three of these utility industries are regulated as such. This is a matter of state policy. States do not have to regulate utilities if they do not want to do so.

Regulation Defined

So, let us proceed to a brief definition of regulation—one which I have boiled down to a single sentence, and which I have found to be quite satisfactory and easily understood. Here it is: *"Public utility regulation is the expression of the right of the public, through the state, to obtain adequate service, at reasonable rates, and without undue discrimination from a responsible public utility in return for a grant of authority to operate in a given territory."*

Now you will note that there are three factors which are implicit in that statement: (1) The right to serve in a protected area monopoly; (2) the duty to serve—which is the utility's public service obligation; and (3) the obligation to maintain a reasonable rate. I would like to stress here the importance of keeping in mind the very limited amount of protection which a utility's so-called monopoly embraces. It is absolutely restricted to the *service area*. That is the full extent of the utility's monopoly and that is the *only* aspect of its operation which is protected. In every other respect a utility must meet competition, plenty of competition. It must even meet competition from other kinds of utilities in its own service area.

As you very well know, gas and electric companies compete with each other for water heating, cooking and in some places for space heating and air-condition business. Aside from that, every utility must compete with every other kind of business, regulated and non-regulated, when it goes to the money market for investor capital, or when it goes into the labor market for employes, or when it buys materials and supplies, or engages in plant construction. Most important of all, it competes with all other businesses in trying to get its fair share of the consumer's dollar. As you know, when a family must decide whether to get a television, or a new car, or a trip to Europe, or an air-conditioner (gas or electric), on that decision depends whether more or less revenue will flow into your own company's business.

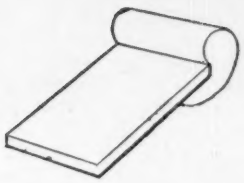
Don't Fall for Monopoly Trap

So it is only with respect to the service area that the utility company is usually protected by regulation from competition by the same kind of a utility company. So don't fall for that booby trap about a utility being a monopoly. It has plenty of competition with respect to most aspects of its operations—financing, labor, materials, and all the rest. It is not even exempt from anti-trust prosecution except with respect to the service area. A good example of that was seen in the anti-trust suit several years ago against the Bell System which resulted in its Western Electric subsidiary agreeing to a consent decree limiting its operations to the service of regulated telephone companies.

Next, let us take up some of these different kinds of regulation—the right to serve, the duty to serve, etc. As you probably well know already, nobody can go into the utility business just because he suddenly decides to do so. You can do that with any unregulated business—hotel, restaurant, and what have you. All you need is the money and the willingness to take the risk and—presto—you are in business. Not so with public utilities. And you can well imagine why. This is a business "charged with a public interest." So it

(Continued on page 36)

The Plant Man's NOTEBOOK



By RAY BLAIN, Technical Editorial Director

DURING THE WINTER months, the hours of darkness are greater than the hours of light. Moreover, three times as many fatal motor car accidents occur in these dark hours as in daylight. If you drive at night just as you drive in daylight, you may well become a statistic of the insurance company and the National Safety Council.

Neither does darkness mean just pitch blackness. It also includes the twilight hours from about 4 to 8 o'clock. Three times as many motorists and pedestrians lose their lives at night in auto accidents as during the day.

In summer months, especially, the succeeding hours, 8 to midnight, are almost equally as hazardous as the twilight hours. About one out of every five auto deaths charged against the U. S. motorist occurs during these hours.

Darkness is a driving hazard for several reasons. Drivers are tired after a hard day. A trip is tiring even when it's not preceded by eight hours of work. Motorists are probably more inclined to doze at the wheel at night. About 1,850 motorists who were killed in traffic accidents in 1956 were said to have fallen asleep at the wheel. An estimated 270,000 dozing motorists were involved in that year's accidents.

It is also more difficult for most drivers to see at night, and some of them just don't realize it. Too, headlights of approaching cars make night driving difficult for many drivers.

Furthermore, it is difficult at night to spot hazards ahead—sudden twists in the road, wandering animals, or maybe a motorist having difficulties with his stalled car.

Perhaps the most dangerous of the night-time hazards is improperly adjusted headlights and overdriving your lights. Overdriving may be explained by considering that at a speed of 60 miles per hour, it takes at least 366 feet to stop a car. The Uniform Vehicle Code recommends that an auto's bright lights be capable of illuminating an object 350 feet away. This means that if you're driving 60 and see a stalled car ahead, you can't possibly stop before reaching it.

•

General Telephone Co. of California is making use of an automatic answering machine in Long Beach to handle back-up calls at the district's switchboard. This machine is connected to a regular station line and is located in the equipment room. The regular switchboard operator's voice is on the tape of the answering machine. When the operator is handling one call, other calls can be waiting and if a third call comes in, she connects it to the automatic answering station via her regular cord pairs.

The recording invites the calling party to wait and explains that the operator will answer the call within 60 seconds. Customer reaction during a two-week trial period was so favorable that three additional units are being installed. We wonder why someone did not think of this clever idea sooner.

•

Recently we heard a new argument for the half-length telephone booth. It was claimed that with this type you can set your suitcase on the floor below the booth and keep your foot on it while talking, to prevent someone from walking off with it.

Such a theft was attempted once on a friend of the writer in Chicago's Union Station. The thief was noted in time, however, and after a short chase he dropped the suitcase and made his getaway. On the other hand, it's true that many public telephone users do not usually carry suitcases.

•

In Florida, a department store in one of the larger cities advertised a telephone number that children could dial to hear a message from Santa Claus.

Arrangements were made with the telephone company to connect lines to suitable equipment required to deliver the recorded message to all callers. Strange as it may seem, the equipment was soon overloaded to the extent that the idea had to be abandoned, much to the embarrassment of both the department store and the telephone company.

Nor was all of the traffic generated by children eager to hear Santa's voice. It was apparently considered a good joke to advise a friend that he had a call from the Santa number and watch his look of surprise as he heard the Christmas message. And some people claim that only children have any fun at Christmas time!

•

Reaction to the ringing of a telephone bell depends largely on our age, according to AT&T's *Long Lines* magazine. The teen-ager comes racing to the telephone with the bright, unclouded assurance that the call *must* be for him—whom else in that household could anyone possibly want?

In the twenties, this conviction is tinged with doubt. Conflicting emotions are involved. One tries to show a suitable indifference when the telephone rings, only to be engulfed by an upsurging happiness at the words, "It's for you."

In the middle years, cupid is definitely off the line. Romance is comfortably seated on the other side of the table. The call is merely an interruption, "Let's hope no one wants us to go out."

•

Walking down Walnut Street in Philadelphia the other day, we observed five stainless steel outdoor booths installed along the sidewalk near a popular restaurant. These gleaming booths were a thing of beauty, and they were also all in use.

•

We hear numerous arguments pro and con as to whether the coffee-break has an important role in present-day American life. Few customs have been established so quickly, defended more tenaciously, or aroused more controversy than the coffee-break, which, in a brief span of years, has attained the status of a national institution.

Numerous recent surveys indicate that the coffee-break is presently en-

joyed by 74 to 94 per cent of employes in the United States and Canada, not including non-regularly employed groups such as housewives.

As most commonly considered, the coffee-break is simply a refreshing time out that actually increases general efficiency. Moreover, it is considered a life-saving precaution, to combat "highway hypnosis" and "throughway stare" when a stretch, *and* a cup of coffee, restore alertness. Coffee-breaks are even being suggested for farmers. On today's mechanized farms, most accidents occur around mid-morning and mid-afternoon, because of fatigue.

We wonder, however, if the coffee-break isn't just a new name for a period of relaxation that has been accepted practice for many foreign countries for years. The English have always had their tea-breaks. This writer well remembers years ago, when shooting rural line trouble in a German community down in Oklahoma, stopping at a house in mid-morning or mid-afternoon; and we were always treated to a cup of coffee and coffee cake. The Scandinavians in the Middle West also observed a similar custom.

Perhaps, we Americans who take pride in being first in everything are just kidding ourselves in the adoption of an age-old custom with a new name.

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Down in Texas, 66 coin collectors for the Southwestern Bell Telephone Co. service a total of 115,000 coin telephones. With their familiar trucks they haul back 36 million dollars in annual revenue. Besides the routine job of removing filled coin boxes and replacing them with empty containers, they also check about 100 items which might affect customer service—from the condition of the instrument itself to a burned-out light bulb in a directional sign.

Some jobs—such as replacing worn directories—they take care of on the spot. Others are reported to plant or the business office for necessary action.

•

About 75 per cent of the nation's households have telephone service, according to reports of the U.S. Census. The northeastern states have the highest proportion of households with telephones, and the South has the lowest proportion. About 65 per cent of the rural households surveyed had telephone service, compared with 79 per cent of the urban homes.

Cross Talk

Abundance in life is measured by the things you enjoy.

Plant Man's QUIZ

By RAY BLAIN, Technical Editorial Director

Q. Where can we obtain reliable information on how to treat electrical shock?

A. It is suggested that you obtain and read a bulletin titled: "Control of Electrical Shock Hazards", published by the U. S. Department of Labor. This bulletin is available for 15 cents from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

Dealing with causes and control of common electrical hazards, it is of use to employes, employers and householders; since it is primarily concerned with the treatment and avoidance of shock from "low voltage", commonly found in offices, factories, and dwellings.

•

Q. Can we obtain a battery eliminator that will furnish ac signal current and dc talking current for use on buzzer signaling and intercom talking circuits?

A. This equipment is available, and its operation is proving entirely satisfactory. One such unit furnishes 6, 12 and 24-volt ac signal current, and 30 and 48-volt dc talking current. The dc ripple is only 5 mv.

•

Q. What is a short circuiting relay-type protector, and how does it operate?

A. When telephone lines experience extreme inductive exposures, the duration and magnitude of the currents induced can be such as to ground permanently standard air gap arrestors which are being used to prevent excessive voltages.

The short-circuiting relay protector makes use of carbon electrode 500-volt air gap arrestors for connection between the telephone line and ground. It is also equipped with relay winding, connected in series with the arrester ground terminal, and contacts that close to short circuit the arrester gap during most of the discharge period.

The relay operates in a few hundredths of a second, serving to prevent permanent grounding of the arrester, and at the same time, bringing both conductors of the pair to a common potential. This action also prevents cross-line effects, such as acoustic shock, which would otherwise take place.

The short circuiting relay protector is available in single and multi-pair units.

When an exposure is such as to require treatment, all of the open wire pairs on a lead should be equipped, preferably with the multiple-unit type, in which all of the bridging contacts of the relays are operated simultaneously by means of a single ac pilot relay connected in the common protector ground lead.

•

Q. What would be a good book on stereo broadcasting and reception?

A. It is suggested that you read a book by Norman H. Crowhurst, titled: "FM Stereo Multiplexing". This 72-page, soft cover book, can be purchased from TELEPHONY for $1.25.

This book was produced as a result of the recent FCC go-ahead on FM stereo broadcasting and the text explains in detail the FM stereo system of broadcasting and reception. FCC standards are carefully explained and illustrated. Reception is covered both in theory and practice with many schematic diagrams used to explain circuit operation.

In addition, many complete schematics of stereo FM adapters are shown. Of special interest to the technician are chapters on the installation and conversion, alignment and performance checking and general trouble shooting procedures for FM stereo multiplex receivers.

•

Q. What is a Voice Frequency telephone circuit?

A. Voice frequency is the frequency band within that part of the audio range which is employed for the transmission of speech. Voice frequencies as used for commercial transmission of speech, are usually within the range of about 200 to 3,500 cycles per second.

THE

TRAFFIC PAGE

By WINNIE BURNETT

LET YOURSELF think! Don't limit your mental horizons just because your physical or geographical horizons are limited. We are tempted to "rope off" an area we think easily suitable to our minds or our work. After we have performed the thoughts or acts called for in our little rope corral, we sit back—and do nothing.

Perhaps a mentally and physically lazy person can be contented with that routine, but to an active person it is anathema. It is loaded with possible frustration and dissatisfaction, and so may cause tensions.

THAT WORD *tension* is certainly used frequently in today's analyses. Like *id* and *libido* and *Oedipus* in the immediate past, it may be overworked. We may as well face it, though, *tension* is here to stay.

Whatever the cause for lazy thinking, let's get the cobwebs out of the remaining active brain cells and think. Failure to think things out may cause us to automatically reject new ideas, new practices. It is much easier to continue in the old way, using the old refrain—"Well, we always did it this way."

The old way was probably a good way *at* that time. The horse and buggy was pretty good transportation until the gasoline buggy came along. The wash tub and rub board was the best means to launder clothes until the washing machine was invented. And frankly, I think Alexander Graham Bell improved our methods of communication quite a bit—by thinking.

IT IS TRUE that the rapid changes in traffic operating methods and procedures have been coming very close together. It sometimes seems that we no more than accept, understand and instruct the operating forces until BOOM—they are changed again. Face up to it—the changes usually speed up operating routines and improve customer service.

Don't be misled into thinking that new practices can't be used in your office because your office is small or not equipped with all the newer equipment. Even ringdown manual offices can and should use standard operating practices. Of course, you can't use dial or key pulse practices when you do not have them. You can't use the marksense methods if you are using the regular paper toll tickets. Such practice instructions are to be used only when applicable. That is true of any instructions; however, most standard operating practices are applicable to most offices, and with a little ingenuity they can be applied to a certain degree in all offices.

THE IMPORTANCE of the use of standard practices by *all* telephone operators cannot be over-emphasized because all use the intertoll network. Incorrect operating procedures not only penalize the originating office—they abuse the privilege of the use of the intertoll network.

It's time, and past, to grow up to modern-day practices. Old-time methods are as obsolete as our childhood toys.

"When I was a child, I spake as a child, I understood as a child, I thought as a child; but when I became a man, I put away childish things." (1 Corinthians 13:11)

Traffic Quiz

(1) Q. When a rate operator says "Other Line (rate)," should you make a special entry on the ticket?

A. Enter "OL" preceding the rate, and "secure OT chg" on the back of the ticket.

(2) Q. If the rate operator gives you the initial rate on a call and then says "Flat Other Line (OL) charge," what do you show on your ticket?

A. Enter "OL (amt)" following the initial rate on the back of the ticket; as, "40+OL 20."

(3) Q. How should the outward operator secure the rate for overtime on an "Other Line" call (not "Flat Other Line")?

A. Reach the rate operator and ask for the "Other Line" overtime charge, giving the number of chargeable minutes, class of call, and the initial rate as shown on the back of the ticket.

(4) Q. Can the outward operator compute the rate when there is a "Flat Other Line" charge?

A. Yes. Compute the overtime based on the initial period rate, then add the "Flat Other Line" charge plus tax.

(5) Q. Do you show "OL" in the "Charge" space of the ticket?

A. No. Only the message charge is shown in the "Charge" space.

Lost Ownership

"Federal aid is comparable to carrying water in a leaky bucket from your own reservoir to a big central well. What is left of the water is poured into the well, and then those in charge apportion you some water in that same leaky bucket and you bring it back home. Besides losing what water is spilled on the two-way trip, you eventually find yourself being told what to do with the water that remains—although it was your own water in the beginning."—Willamina (Ore.) *Times*.

The 44 Alaska convention delegates who toured the 49th state took time out at Kotzebue for this photo.

ALASKANS MEET IN 11th CONVENTION

THE RAPID expansion and modernization of telephone communications in Alaska was reflected in the record attendance at the 11th convention of the Alaska Telephone Association, held recently in Palmer.

All 15 telephone companies in Alaska were represented at the convention, and, in addition, representatives of companies in Washington and Oregon and Canada were present. Also represented were the Alaska Railroad, U. S. Army Alaska Communications System, RCA (which operates and maintains the White Alice Project), Western Union, the Rural Electrification Administration, and 24 manufacturers and suppliers.

Two representatives of the United States Independent Telephone Association were in attendance and took part in the convention program—C. C. Pearce of Riceville, Ia., then president, and Hugh A. Barnhart of Rochester, Ind., past president and director.

Good Year in Alaska

The convention was presided over by its president Martha P. Cushing of the Sitka and Kodiak Telephone companies. Mrs. Cushing reported that 1961 was a good year for the telephone business in Alaska. Most telephone companies have shown good station gains and, with the cutover to dial of the Nome exchange in August, Alaska became 100 per cent dial.

Mrs. Cushing also reported that the association had 100 per cent membership of all telephone companies in the state, and that every company had one or more representatives at the convention.

She particularly welcomed Jay Houghtaling of St. Paul, Minn., veteran Independent telephone engineer, who has spent considerable time in Alaska consulting with telephone companies and who was one of the organizers of the Alaska Telephone Association.

ACS Described

The first speaker of the convention was Col. John R. White, commanding officer of the U.S. Army Alaska Communication System. Colonel White told the convention of the improvements that have been made in the Army system, including the completion of the operator toll dialing program for all of Alaska, installation of microwave radio, carrier equipment, submarine coaxial cable, etc., and reported on plans for the future expansion and improvement of ACS.

Colonel White emphasized the stated policy of the Army that the ACS, operated by the Signal Corps, will withdraw from the provision of local telephone service in Alaska, where a commercial company indicates a desire to provide service and it is considered competent and capable.

"Plus Profit Factors" was the subject of an address by James M. Zidlicky of Chicago, sales promotion manager of Automatic Electric Sales Corp.

"The key to greater profits for any business, whether it be a manufacturer of home appliances or a telephone operating company, is contained in a sound marketing program that embodies a solid sales effort, a well-organized advertising and promotion program, and the cooperation of every member of the organization, whether he or she owns a share of the business, or is an employe," he said.

Two Basic Factors

There are two basic factors in a telephone marketing program, according to Mr. Zidlicky. They are:

"(1) *We must develop new accounts.* We have to contact people in the areas that need our facilities and would enjoy the service but don't have it.

"(2) *We must try to increase our business we now enjoy from our old established customers.* We'll do this by selling extensions, new types of instruments and more conveniences."

Mr. Zidlicky said that these two factors represent the first step in a three-pronged marketing program which he designated "Ready-Aim-Fire."

The "aim and fire" steps have to do with planning advertising, sales promotion, and employe sales programs, and then, putting these programs into action.

"A well-prepared marketing program by putting the 'ready-aim-fire' technique into effect will help a telephone company to enjoy plus profit factors," Mr. Zidlicky said.

Great Challenges Ahead

C. C. Pearce, in an address on "Frontiers in Communications", told

the Alaskans that they are faced with the same problems as telephone companies in other states, which have been brought about by new technological developments, demand for a wider use of communication facilities, and competition from outside sources.

He warned the Alaskan companies that they will have to become over-all "communications" companies, rather than just telephone companies, if they are to meet their future responsibility of adequately serving the public. He concluded:

"The telephone industry has made more progress during the last 15 years than it made in the previous 50 years. During the World War II, and prior thereto, we were largely engaged in transmitting the human voice over wires. Now, we have become a communications industry, involving data transmission and new services such as Wide Area Telephone (WATS) service and TELPAK.

"Although the industry faces some terrifying challenges during the next 10 years, we cannot help but be optimistic about the future of our industry.

"We have the tools and the know-how and the experience in our industry, and beyond today's frontiers lie great rewards. But we must redouble our efforts to meet the needs of our present and future customers promptly, efficiently and economically in cooperation with other Independent companies and the Bell System. We must remain corporately healthy. We must see that our earnings are adequate to attract new capital. We must provide adequately for replacement of, not only worn out equipment, but equipment that is becoming obsolete. We must provide services in the future that will make today's mighty achievements seem puny. We must work for and support our state and national associations, and the committees which offer the best vehicle for cooperation and teamwork between Independents themselves, and between Independents and the Bell System.

"In this highly competitive and technical age, where being one step ahead means survival, Independent telephone companies must stay more than "one step ahead" by expanding operations, developing new equipment, offering new services, and by maintaining a position progressive enough to cope with the most complex problems created by society and time."

Photographed between sessions of the Alaska convention are, left to right: Martha P. Cushing, Sitka, Alaska association president; Keith Regel, Burlingame, Cal., district manager of Automatic Electric Sales Corp.; Owen E. Meals, Valdez Light, Power & Telephone Co., and J. M. Zidlicky, Northlake, Ill., director, sales promotion, Automatic Electric Sales Corp.

Transmission Fidelity Need

"What Price Fidelity in Communications" was discussed by W. M. Swezey, manager-operations and engineering support, Radio Corporation of America, which operates and maintains the White Alice Project. Mr. Swezey formerly was associated with Independent telephone companies in New York State and with the New York Telephone Co. He pointed out that one of the definitions of fidelity is "the degree to which an electrical device, as a radio receiving set, accurately reproduces its effect."

He observed that the field of telephony is very much involved in "fidelity", inasmuch as it must accurately receive and reproduce information, which he defined as "intelligence", through apparatus for electrical transmission.

He pointed out that the high cost of producing modern day telephone service is not only due to the ever-increasing demands for reception and transmission of intelligence, but it is created by the necessity of maintaining fidelity as well.

He said the major area of concern, in connection with fidelity, revolves around the connecting trunks between Independents themselves and between Independents and Bell System companies, or in Alaska, the Alaska Communication System. Pointing out to the Independents that they are not expected to provide fidelity as a quantitative requirement or compatibility, Mr. Swezey told them that if they desire access outside of their own exchange areas, their equipment, circuits, etc., must be compatible with the facilities of companies providing nationwide toll service.

Ralph D. Saylor, vice president of the Pacific Division of Western Union

Alaska Telephone Companies

	Number of Stations
Alaska Telephone Corp. (Seward)	1,541
Anchorage Telephone Department	21,527
Community Utilities (Skagway)	300
Cordova Public Utilities	351
Fairbanks Municipal Utilities System	7,406
Juneau-Douglas Telephone Co.	4,213
Ketchikan Municipal Utilities	2,694
Kodiak Telephone Co.	1,006
Matanuska Telephone Association (Palmer)	1,205
Nome Telephone Co.	440
Sitka Telephone Co., Inc.	1,222
Southeastern Telephone Co. (Sitka)	75
Trans-Alaska Telephone Co. (Anchorage)	1,197
Tundra Telephone Co. (Bethel)	125
Valdez Light, Power & Telephone Co.	185
	43,487

Telegraph Co., spoke on "The Electronics Revolution". He reviewed the history of Western Union and described the expanded service which it is providing today through the installation of various electronic and data transmission facilities.

He summed up the shape of the future of communications, as Western Union sees it, by emphasizing that the company is pushing rapidly ahead with the greatest building and expansion program in its history. Capital expenditures for plant and equipment totaled 105 million dollars in 1961, and expenditures on a similar scale are scheduled for 1962. He concluded:

"It is my opinion that the science and technology of communications are destined to change more in the next 10 years than they have in the past 50, due principally to the continuing tremendous growth in computers and electronic data processing. And remember, communications changed more in the first half of this century than in the entire history of mankind.

"Scientists and engineers are moving rapidly toward the ultimate goal—perhaps not too far in the future—the ability to communicate instantaneously anywhere in the country, and perhaps in the world, in written record, with sight and sound as well. We can expect communications systems of the future to be equipped with machines that will respond to written or spoken direction, engineered so that a person can talk and the device will recognize words, interpret them into digits suitable for transmission and then, at destination, translate the digits back into written language, or record them for processing by business machines and computers.

Must Keep Ahead of World

"The key to our future growth—scientifically and electronically—is continued research and engineering. Everything new in the world starts first with an idea and these days those ideas are coming, and must come, from the men trained in such thinking—our scientists and engineers. More and more the modern corporation is being called upon to do the basic pioneering research, engineering and development of new ideas, new products, new processes that will not only enable our economy to continue its explosive growth but to keep us ahead in competition with other nations.

"Looking ahead, I think you will see electronic communications research achieve a succession of new scientific accomplishments that will startle the world. We can expect that in the complex nuclear and aerospace age now upon us, its control and direction will depend increasingly upon the progress of communications and communicators."

F. E. Grady, sales engineer of General Dynamics/Telecommunications asked his Alaskan audience, "Is progress paying?" a question which in Mr. Grady's interpretation, is based on the premise that progress is unavoidable.

If, in the process of meeting increasing needs for service, in expanding plant and making other changes essential to company growth to provide this service, the individual, and/or the company, becomes complacent and fails to exert individual initiative, that individual, or that company, will not reap the full reward that is inherent in true progress.

Progress a Heritage

Mr. Grady regards progress as a heritage to be passed on, synonymous with the free spirit of individualism, which he sees as the basis of progress for all mankind.

Instead of leaning so heavily upon government help in solving major business problems (including financing), and depending so greatly upon "big brother" relations with other companies, Mr. Brady pleads for better individual judgment in management for planning ahead, and for using the company's brain power as its "most powerful resource".

"If progress isn't paying for you, maybe you are not paying your share for progress by being a part of it," he summed up. "Our continual progress can only be assured by increasing numbers of people becoming better educated, being freed from manual hard labor to devote their time and labor to creative development of a better way of life."

Other speakers on the program were W. E. Greene of Oregon Agricultural Chemicals, whose subject was "Management Résumé"; Earl R. Anderson of Pure Gas Equipment Corp., who gave a talk and demonstration on cable pressurization; Ralph Mills, Alaska REA field representative, who described REA loan policies and procedures; Don Lowell, civil defense area director of Alaska, whose subject was "Civilian Defense Attack Warning".

Other features of the convention were a panel discussion on "The Uncollect Problem and Credits", and a transmission school conducted by K. C. Gillette, sales manager—telephone division, Communication Equipment & Engineering Co. of Chicago.

Following the convention, 44 convention delegates took a tour of Alaska, during which they visited Fairbanks, Point Barrow, and Kotzebue and Nome. The tour was planned and directed by Bert Proctor of Bellevue, Wash., who is with Automatic Electric Sales Corp.

Hugh A. Barnhart of Rochester, Ind., past president of the United States Independent Telephone Association, was one of the members of the Alaskan tour, and he has written the above article describing the telephone communications system serving the Forty-Ninth State.

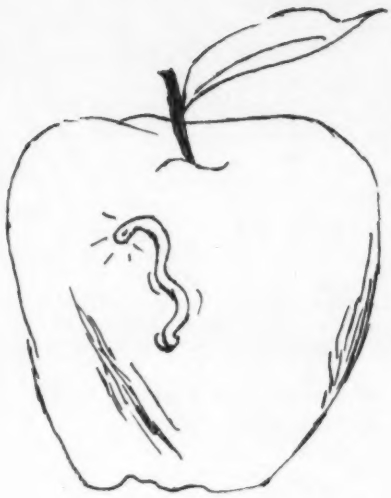
Alaska Telephone Companies Ready to Serve Growing State

By HUGH A. BARNHART

ALASKA is blessed with a telephone system today that is as new and modern as its statehood. Dial service is furnished the state's 43,487 subscribers by 15 Independent companies at many, many small exchanges. Several of them have added Direct Distance Dialing. Yet many pioneers living today can recall the days when sled teams and river steamers, not too long ago, were the only connecting links between outposts. Communication facilities were inaugurated by the government at the start of the century and privately owned companies came along later.

The little exchanges, in towns and settlements, many of them the "mom and pop" type, were founded and operated in the early days much the same as they were in the old 48 states. All of them struggled to make ends meet. Some gave up, and bankruptcies were common. In Anchorage, Fairbanks and Ketchikan the city councils voted not to renew franchises. The cities then took over the systems and these three are municipally owned now. With the growth that came following World War II, the telephone business began to improve and new

(Continued on page 40)



How to Keep "Bad Apples" Out Of Your Personnel Barrel

By WILLIAM J. MILFORD

SOME OF THE ablest personnel men in the telephone business readily admit that one of their biggest problems in interviewing applicants is to spot badly maladjusted individuals before they are hired.

Screening out the "bad apples" before they get into the barrel can be done to a considerable extent. There is no positive assurance that every one will be caught in time, since such individuals are usually most adept at hiding their true personalities, but many can be spotted.

From actual experiences of personnel men I have interviewed, I have gleaned a number of suggestions which can be followed.

(1) *Don't ever forget mistakes in judgment you have made.* Too often we make little effort to analyze the types of individuals whom we approved for employment in the past, but who turned out to be undesirables. Most of us want to forget these experiences.

Keeping them in mind can help spot another person of that type.

(2) *Ask leading questions during the interview.* Questions about a former position, attitude towards the supervisor, etc., can reveal unhealthy thought patterns.

Practically every individual who has undesirable characteristics such as picking fights, talking too much, untruthfulness, etc. has developed a rigid mask to use at job interviewing time. Usually he is well aware that if the truth concerning himself were known, he would have little chance for the job.

(3) *Ask for personal references as well as job references and check them as closely as possible.* Check beyond the references given. One personnel department head reports he uses the names given him by a prospective employe only to discover other individuals who know the applicant. It is these people to whom he directs his inquiries, for the very obvious reason that those given him are most apt to be individuals favorable to the applicant.

It is always well to keep in mind when making such a check-up that the men who work with the applicant can give a much truer picture of what he is like, than any foreman or executive in the company where that individual was last employed.

(4) *If you suspect an individual may have unpleasant attributes, see if you can arouse belligerency in him.* This must be done in a very subtle manner.

Problem employes have learned to put on a rigid mask when they are interviewed for a job. It takes real skill to uncover their true personalities before they are hired.

Few people can help showing their true selves if they are slightly provoked.

However, this technique should only be employed if an applicant seems to warrant it.

(5) *Look for intolerance of any sort.* Unpleasant people cannot hide prejudices if given a chance for an opening. Almost invariably a type such as the grouch is deeply intolerant about something or someone.

Many studies have been made of maladjusted persons, and very often a trait found in every such person is an intolerance towards someone or something.

(6) *Watch little mannerisms during the interview.* Too often an employer shrugs such things away as being unimportant to the job. However, they may be an indication of extreme neuroticism, belligerency or other undesirable characteristics.

Chiefly such negative mannerisms are tip-offs to other and better hidden undesirable features in the applicant's makeup. Once again, they give us a clue to the need for very close investigation of an applicant we otherwise would have approved.

(7) *Watch out for the man who has a record of many job changes.* Check on him thoroughly no matter how skilled he may be, or how badly he is required for an open job. Occasionally there are good and legitimate reasons for the existence of such a job record, but in the vast majority of cases, the reasons are anything but good.

Studies show that in about half of

(Continued on page 39)

Courts and Commissions

Nebraska High Court Reverses Commission Service Order

The Nebraska Supreme Court on Jan. 5 reversed an order of the Nebraska Railway Commission of Mar. 8, 1961, in which it gave permission to switching subscribers at Eddyville, Cozad and Oconto to transfer to Lexington or to obtain service from "any operating company of their choice operating within the area." This order of the commission revoked an earlier order of Nov. 23, 1960, in which it had denied the application (TELEPHONY, July 29, 1961).

Companies involved were the Eddyville Telephone Exchange, Cozad Telephone Co., the Oconto exchange of the Public Telephone Co., Blair, and the Lexington exchange of the Northwestern Bell Telephone Co.

In appealing the commission's ruling, the Public Telephone Co. appeared as the appellant, and the Northwestern Bell Telephone Co. as the intervener-appellant.

The Nebraska high court issued these decisions:

(1) "A group of people in a rural community having a telephone line to serve the community by connecting with a public service company, where they are afforded only local or long distance switcher service by the public service company for a fee, is not a common carrier subject to control or supervision of the Nebraska State Railway Commission."

(2) "The Nebraska Railway Commission is without power to grant an application made by a group of people in a rural community, and not a common carrier, to attach their area to that of a common carrier whose service area does not include the area occupied by the applicants."

(3) "The Nebraska Railway Commission is without power to require a telephone company which is a common carrier to extend its service beyond its established service area, and into a rural community where it has not previously extended its service."

The court's ruling further stated: "It is of course true, and no one disputes this, that the parties within the territorial boundaries of the established service area of a telephone company, within the true meaning of that term, have access to the commission.

"The next subject which requires examination is that of whether or not the Northwestern Bell Telephone Co. may be required to respond to the petition and extend the service requested by the petitioners, which company does not furnish any service in the area; does not claim any rights therein; and does not seek, but on the contrary objects, to furnishing any such service.

"On the record, and in actuality the sole and declared purpose of this action, is to obtain from the commission an order placing the territory occupied by the petitioners within the service area of the Northwestern Bell Telephone Co.

"No statute has been referred to which imposes any such requirement. Any effort of a telephone company to enter the territory of another is subject to action of the commission, but the matter of compulsory entrance into occupied or unoccupied territory does not appear to have received legislative attention.

"It is of course true that the commission has control of such companies within certain statutory limits coextensive with established areas, and in case of disputes as to service between companies operating within established areas; but there is no statutory provision which permits extension of areas or creation of new areas without the consent of the company.

". . . statutory provisions permit the extension of service by one company into the service area of another but they do not permit the commission to require it to do so."

N. C. Company Asks OK For Million Dollar Bond Issue

Norfolk & Carolina Telephone Co., Elizabeth City, asked the North Carolina Utilities Commission on Jan. 11 to authorize it to issue one million dollars worth of first mortgage bonds to raise money for expansion and improvement of its system in northeastern North Carolina.

The bonds, which would carry an interest rate of 5⅛ per cent and would mature in 25 years, would be sold to Connecticut Mutual Life Insurance Co.

Arkansas City Votes to Buy Independent's Property

Voters of the city of Salem, Ark., acting under provisions of an Arkansas General Assembly act, on Dec. 26 voted to buy the Salem properties owned by the Hardy Telephone Co.

The statute, dating from 1935, provides:

"Any public utility accepting or operating under any permit, license or a franchise heretofore or hereafter granted shall by acceptance of any such permit, license, or franchise, be deemed to have consented to a future purchase of its property actually used or useful to the convenience of the public by the municipality within which it is situated."

The Arkansas Telephone Association, in its December member letter, observed: "Before the purchase can be consummated, serious legal questions must be resolved—probably by a decision or decisions of the Arkansas Supreme Court."

New York Company Asks Raise To Permit Modernization

The Hawleyton Telephone Co. filed a rate request with the New York Public Service Commission, it was reported on Dec. 27, affecting subscribers in its immediate area, and also in a cottage area at Quaker Lake, Pa., to be effective Feb. 1.

H. Russell Cammer, president of the company, said the increase was proposed in line with planned improvements to be made by the 56-year-old company. Since purchasing the Hawleyton company in May, 1961, Mr. Cammer, who is also president of Western Counties Telephone Corp., New York, indicated that he had assigned two men on a full-time basis to manage and maintain the system. He also hired a firm to design a dial system; and applied for an REA loan to rehabilitate and modernize the system. He said the single low rate of $1.50 for all service is "grossly inequi-

(Continued on page 32)

FACTS & FICTION

about polyethylene insulated-jacketed telephone cables

Q. Is polyethylene insulated-jacketed telephone cable easy to install?

A. Yes. Its light weight and flexibility make handling and installation easier . . . save on labor costs. Readily distinguished color-coded polyethylene insulation speeds hookup and maintenance of multi-conductor cables.

Q. Do cable access points have to be hermetically sealed?

A. No. The moisture resistance of polyethylene insulation and jacketing eliminates the time-consuming job of hermetically sealing cable systems...thus the use of ready-access distribution terminals saves time and costs during installation and maintenance.

Q. Does polyethylene insulated-jacketed cable become unserviceable if damaged by storm?

A. Because it offers exceptional moisture resistance, only those conductors actually damaged go out... while the others remain in service. With absorbent pulp-insulated singles, the entire cable, more likely than not, will short out. And that means a major repair job... turns a routine job into an emergency "rush."

Q. Does polyethylene insulated-jacketed cable have good, low-loss electrical characteristics?

A. The best...The excellent low-loss characteristics of polyethylene singles insulation, maintained over a wide frequency and temperature range and in the presence of moisture, make possible lower capacitance unbalances, reduced cross-talk and noise level...important performance "plusses" which contribute to reduced system net losses.

Q. How much abuse can polyethylene insulated-jacketed cable withstand?

A. The tough jacket of polyethylene provides telephone cable with outstanding protection against abuse encountered during storage, installation and service. Resistant to weathering, stress cracking, abrasion and corrosives... telephone cables insulated and jacketed with BAKELITE polyethylene have been in operation for ten years without evidence of failure. Suitable for use in aerial, duct, above-ground and buried systems.

Want more information? Write Dept. LU-139A, Union Carbide Plastics Company, Division of Union Carbide Corporation, 270 Park Ave., New York 17, N. Y. *In Canada:* Union Carbide Canada Limited, Toronto 12.

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Are there any new customers in your area? Any old ones with new telephone needs? If so, show them the AE telephone service best suited to their particular needs. For details on our complete line of station equipment, contact your AE representative. He can also furnish you with valuable sales aids to help you promote these services. To contact him, just write to Automatic Electric Sales Corporation, Northlake, Illinois.

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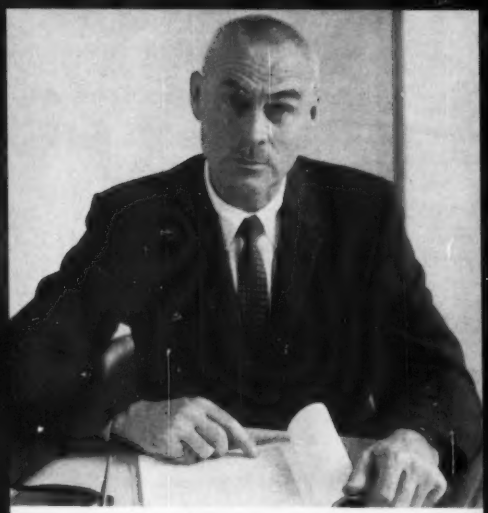

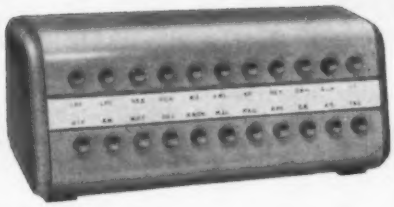

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AUTOMATIC ELECTRIC

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GENERAL SYSTEM

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table and has resulted in serious operating losses."

The old and new rates were listed as follows:

	Old	New
One-party business	$1.50	$6.50
Two party business	1.50	5.50
Ten (or less)-party business	1.50	4.50
One-party residence	1.50	4.50
Two-party residence	1.50	4.00
Four-party residence	1.50	3.75
Ten (or less)-party residence	1.50	3.25

United Utilities Buys Oregon Independent

Officials of United Utilities, Inc., Kansas City, have announced the purchase of Lincoln-Tillamook Telephone Co., Delake, Ore. The acquisition was made through an exchange of stock.

Operating at Delake and Cloverdale, the Lincoln-Tillamook exchanges serve approximately 3,000 dial telephones in a service area extending for 34 miles along the Pacific coastline. Gross revenues for the first nine months of 1961 were nearly a quarter of a million dollars.

The U. S. Air Force maintains an important SAGE installation at Mt. Hebo in the Cloverdale exchange area. Service boundaries are contiguous with the Sheridan exchange of Oregon-Washington Telephone Co., another United System subsidiary.

William Berglund, head of Lincoln-Tillamook Telephone Co. at the time of its change of ownership, will continue in the capacity of vice president of the company and as a member of its board of directors.

Montana Independent Seeks $213,000 Rate Increase

Pacific Power & Light Co., Kalispell, has asked the Montana Board of Railroad Commissioners for authority to increase rates by $213,000.

It said it needed the added revenue to meet increased costs of providing modern service to its customers. Present rates have been in effect for nearly 10 years, the company added.

Its application said the company spent 2.8 million dollars for system improvements from 1952 to 1960 and $626,000 in 1961 alone. The added revenue is needed, it said, to offset the higher cost of materials, wages and taxes since its general rate structure was reviewed in 1952.

Under the proposed schedule, intrastate rates would be increased. Also, the coin telephone charge would increase from five to 10 cents.

Pacific Power serves 11,000 telephone subscribers in 12 exchanges.

Northwestern Bell Authorized To Provide New Neb. Services

The Northwestern Bell Telephone Co. on Jan. 4 received approval from the Nebraska Railway Commission for new service offerings, as follows:

"Add-on Conference Arrangements" will be provided at $2.75 per month. Such service will enable a station, or stations, when properly equipped, to establish a three-person conference call without the aid of a switchboard attendant.

Permission was granted to extend the company's "Special Billing Numbering Plan" so that it will not be restricted to private branch exchange customers.

Company-provided service may now be used alternately with customer-provided private mobile radio telephone systems. Such company service may be through telephones used in connection with either exchange or private line service.

Great Issues

"As businessmen we no longer can continue to look only at the industrial problems of the world and think we are doing our full duty or as we are prone to call it, 'minding our own business.' There may very well be no industrial problems to worry about if we do not . . . start thinking right away as to how we are to solve the greater issues with which the world is now faced."— John J. McCloy, President's special disarmament adviser.

An operator-headset-type telephone will be offered at a monthly rate of $8.75, and an installation charge of $30. This may be plugged into the set and used alternately with the regular telephone instrument. Keys are provided as part of the jack-equipped Call Director to serve as a switch hook.

A new device will be provided to approximately equalize the levels of local and distant talkers and to reduce the level of the warning tone on recordings. For this purpose, amplifier filter units will be offered at $6.50 per month and an installation charge of $5.00.

Approve Kentucky Merger

The Kentucky Public Service Commission has approved the merger of four subsidiaries of Telephones, Inc., of Chicago, Ill. (TELEPHONY, Dec. 9). The four are Kentucky Telephone Co., Augusta; Calvert Telephone System, Inc., Calvert City; Mammoth Cave Telephone Co., Park City, and Northeastern Telephone Corp., London. Name of the new company is Kentucky Telephone Co., and headquarters, London.

Order $498,987 NET&T N.H. Rate Cut, 6-Month Rebate

The New Hampshire Public Utility Commission on Dec. 28 ordered a $498,987 reduction in rates for the New England Telephone & Telegraph Co., the first reduction in eight years. In the order, NET&T was also asked to return to its subscribers approximately six months' excess in back rates (TELEPHONY, June 24, 1961).

The New Hampshire commission, in March, 1961, asked the company to show cause why its rates in the state should not be reduced. The commission found that the return on the company's New Hampshire investment had reached 7.1 per cent in 1960, or nearly 1 per cent more than the 6.2 authorized in 1957.

Although NET&T contended that its rates should not be lowered, that they were reasonable and necessary if the company was to attract the capital for expansion and to meet service needs, the commission found that in 1958, 1959, and in 1960, the company earned $695,000 more than allowed by the 1957 order, since it had collected an additional $1,460,000 from subscribers.

The commission then ordered the company to file a new schedule of rates which—while they would give NET&T an additional one-tenth per cent return on its investment, 6.3 *vs.* 6.2 per cent—would actually produce $498,987 less a year than what is now collected. The new rates are to be made retroactive to June 15, 1961; and the company must repay the difference between the new rates and those in effect in June, 1961, or one-half of $498,987.

The commission further said it would require that "the major part of the reduction be accomplished by lowering intrastate toll rates, looking towards the elimination of the intrastate and interstate toll rate disparity."

Haynes H. Fellows Jr., New Hampshire manager for the NET&T company, said, "In view of the rapidly declining trend in our New Hampshire earnings, of which the commission is well aware, an order to reduce telephone rates is most difficult to understand."

Mr. Fellows added that a further review of the company's earnings "is imperative" and that a "petition for a rehearing will almost certainly be one of the first steps we will take to ob-

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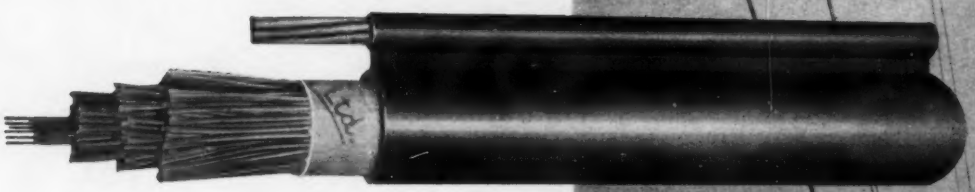
This is the Gourd-type cable — a new shape that contains a suspension strand, a communication line, and the answer to several problems!



This unique local or exchange area cable developed by Hitachi derives its distinctive "gourd shape" from the polyvinyl chloride sheathing that totally encloses the polyethylene-insulated communication line as well as its parallel suspension strand. It can be used in all the applications of conventional PE-insulated PVC sheathed cable and, in addition, is suitable for installation on steep grades where paper-insulated lead sheathed cable could not be used.

Another notable feature of the gourd-shaped cable is that it dispenses with the need for hangers, making installation easier, cheaper and faster. It can be installed close to buildings and power lines with complete safety (the suspension strand can be grounded to reduce electrostatic induction in the latter instance), retains high transmission qualities under the most trying weather conditions, and successfully withstands attack by salt or airborne chemicals.

Communication Equipments

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tain such a review" by the commission.

Mr. Fellows reported that the most recent earnings statement, for the 10-month period ending in October, 1961, shows earnings dropped to 6.28 per cent, or less than the minimum 6.3 per cent allowed by the commission.

The commission based its decision on the 12-month period ending last June. It said that the issue at stake was the establishment of rates which would produce a "fair rate of return" for the company on its investment. It found 6.1 per cent to be the cost of capital to the New England company, and the minimum rate of return to which it felt the company is lawfully entitled.

It then allowed the NET&T an additional two tenths of one per cent and set the new rate of return at 6.3 per cent "in order to provide an additional margin over and above the company's capital requirements as assurance for high standards of service . . . continued modernization and expansion of . . . plant and equipment . . . through its projected construction program." The commission added: "We also recognize that the company management and employes are deserving of an opportunity to produce net earnings in excess of capital costs, as an incentive for future efforts and progress in telephone communications in this state."

Ga. Company Gets Approval Of Raise, REA Loan

The Georgia Public Service Commission on Dec. 21 granted the Plant Telephone & Power Co. Inc., Tifton, permission to raise rates. The Plant company had applied for the increase on Nov. 8, 1961.

The commission also approved the company's petition to borrow $954,000 from the Rural Electrification Administration. Proceeds from this loan will help to (1) complete prior loan construction; (2) improve service to existing subscribers and extend service to approximately 1,087 new subscribers including 15 dial mobile radio units; (3) provide facilities for extended area service; (4) purchase land at Omega and construct new exchanges at Omega and Pinehurst and make additions to the headquarters at Tifton; (5) provide for additional vehicles, work equipment, office equipment, engineering, and other related requirements.

When the program is completed the company will be serving 3,383 subscribers.

Present, proposed and approved rates are as follows:

Omega-Warwick. Present rates, which had been approved by the commission on an interim basis, were made permanent. The commission did not approve the rates requested.

	Approved	*Rejected*
Business		
One-party	$7.00	$8.25
Two-party	6.00	7.75
Four-party	5.00	——
Multi-party rural	5.50	6.50
Residence		
One-party	$4.75	5.50
Two-party	4.00	4.75
Four-party	3.25	4.25
Multi-party rural	4.25	4.50

Lenox-Pinehurst.

	Pres.	*Prop.*	*Appr.*
Business			
One-party	$5.50	$7.50	$6.50
Two-party	4.50	7.00	5.50
Four-party	3.50	6.50	4.50
Multi-party rural	4.00	6.00	5.00
Residence			
One-party	3.25	5.00	4.25
Two-party	2.75	4.25	3.50
Four-party	2.25	3.75	2.75
Multi-party rural	3.00	4.00	3.75

Pearson-Willacoochee.

	Pres.	*Prop.*	*Appr.*
Business			
One-party	$5.50	$8.00	$6.75
Two-party	4.50	7.50	5.75
Four-party	3.50	——	4.75
Multi-party rural	4.00	6.25	5.25
Residence			
One-party	3.25	5.25	4.50
Two-party	2.75	4.50	3.75
Four-party	2.25	4.00	3.00
Multi-party rural	4.00	4.25	4.00

Soperton. The company had proposed the same rates for Soperton as for Pearson and Willacoochee. The rates which were approved were 25 cents per month higher for each class of service than the present rates shown below.

	Present
Business	
One-party	$6.50
Two-party	5.50
Multi-party rural	5.00
Residence	
One-party	4.25
Two-party	3.50
Four-party	2.75
Multi-party rural	3.00

The commission also approved a rate of $5.00 for four-party business service.

Authorize N. Y. EAS Rates Affecting Five Exchanges

The New York Public Service Commission on Jan. 9 accepted tariff amendments filed by New York Telephone Co. and Rochester Telephone Corp. under which toll-free calling areas of five exchanges will be enlarged on Jan. 21.

Despite a $600 annual increase in basic rates to some of the subscribers involved, the commission said elimination of present toll charges which produce $1,400 annually will result in a net saving of about $800 to subscribers involved.

The Morton exchange of New York Telephone Co. now offers toll-free service to the Bell exchanges at Holley and Kendall and to Rochester Telephone's exchange at Hamlin. That exchange is to be merged with New York Telephone's Kendall exchange, subscribers of which now have toll-free calling to Albion, Holley, Morton, and Waterport.

As a result, toll-free calling will be established between Rochester's Hamlin exchange and the new New York Telephone Kendall exchange, with the calling area of subscribers of the present Morton exchange being enlarged by the addition of the New York Telephone exchanges at Albion and Waterport.

The Morton exchange serves about 250 subscribers and the Kendall exchange about 400. Slightly more than 700 are served by the Hamlin exchange of Rochester Telephone Corp.

With the inclusion of the Morton exchange within the Kendall exchange, rates now charged for Kendall will become applicable to present Morton subscribers. They are: One-party residence, $4.50; two-party residence, $3.70; four-party, or rural residence, $3.25; one-party business, $9.25; two-party business, $8.00; and rural business, $4.95.

Two Increases Authorized For Independents in Wis.

The Midway Telephone Co., Medford, received authority on Dec. 29 from the Wisconsin Public Service Commission to increase its rates at Medford, Stetsonville and Dorchester by $24,289 annually. The company has completed a $570,000 modernization program, it was reported.

•

Also reported on Dec. 30 was authorization for Union Telephone Co., Plainfield, to increase its rates at Plainfield and Hancock by $3,548 annually (TELEPHONY, Sept. 23, 1961). The company had asked for an increase amounting to $4,292.

Approve Raise in Illinois

The Tonica Telephone Co. on Dec. 27 was granted a rate increase (TELEPHONY, Oct. 14). The new rates will give it a 5.55 per cent return on its rate base. The Tonica exchange is being converted to dial operation.

The Making of a Magnet. Bell scientists test new superconducting electromagnet, the small cylindrical object being removed from helium bath at minus 450 degrees F. An early experimental design produced a field strength over 65,000 gauss.

OUT OF SOLID STATE SCIENCE COMES A POWERFUL NEW MAGNET

Bell Telephone Laboratories' creation of a powerful superconducting electromagnet once again illustrates the role of materials research in the advancement of communications.

It has long been known that certain materials called superconductors have a zero electrical resistance at temperatures near absolute zero. A solenoid of superconductive wire carrying a large current should be capable of producing an extremely powerful magnetic field without the bulky power equipment that is needed for conventional electromagnets.

A formidable obstacle blocked the way, however. The strong magnetic field tended to destroy the wire's superconductivity.

Bell Laboratories scientists studying superconductors—as part of their endless search for new materials for communications—were led to the discovery of a number of alloys and compounds having exceptional superconductive properties. One of these materials, a compound of niobium and tin, was found to possess a startling ability to retain its superconductivity in intense magnetic fields of over 100,000 gauss. Bell scientists went on to show how the brittle, intractable material could be made into a wire and hence wound to make an extremely powerful electromagnet.

By finding a low-cost way to create enormously powerful magnetic fields, Bell scientists have brought closer new applications of magnetism in communications. Intense magnetic fields provide an invaluable tool in research, and offer an attractive means for containing hot plasma in thermonuclear experiments.

The new magnet is another example of how Bell Laboratories research not only works to improve Bell System communications but also benefits science on a broad front.

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PUBLIC RELATIONS OF UTILITY REGULATION

Continued from page 20

cannot be left to the whims or caprice of fly-by-night operators. It is too important. Now, what are the sources of authority for going into the utility business? There are three levels:

(1) The corporate charter.

(2) The city franchise.

(3) The certificate of convenience and necessity.

Must Have All Three

These sources of authority are by no means alternatives, so that if you have one you do not need the other. On the contrary, they are generally concurrent and, except in special or unusual circumstances, a utility will have to have all three. The point to remember, here, is that they operate at different levels. The corporate charter is the utility's right to operate as a *corporation*. No modern utility business of any size at all could be operated except by a corporation. That is because the public interest requires the continuity, ability to finance, and other attributes which the corporate form alone assures.

But the corporate charter is often quite broad and permissive. It simply allows a company to do certain things or go into certain businesses. It does not impose an obligation to do so.

That brings us to the next step—the franchise. In former days the franchise was more important in regulation than it is today, because much of the regulation by the city, spelling out its franchise has been taken over, in recent years, at the state level by the regulatory commission in the form of certificate requirements.

Nevertheless, the franchise is still necessary in most cases where a utility operates within a city and uses its streets and other facilities. The franchise is essentially a contract or legislation by the city, spelling out its agreement or requirements as a prerequisite to the utility's right to operate in that city.

Certificate Important Step

That brings us to the third and most important step—the certificate from the state commission. As you know, many utility companies operate outside of cities, as well as within them. Hence the importance of the certificate which defines where and how a utility will operate. It defines the service area. It explores the utility's ability to serve, financially, physically, technically. It is a continuing form of control which the regulatory commission exercises over utility operations and which has largely superseded the franchise in importance. A utility cannot start a business, or ever go out of business, such as in the case of abandoning service without a certificate from the state commission. So, we see that the utility's legal right to serve is pretty well tied up with the utility's duty to serve. The same franchises and certificates which define its service area and facilities also control its obligations to serve the public within that service area.

This brings us finally to the area of rate regulation. Some of you may have begun to wonder when I was going to get around to this. But as I said a few minutes ago, I think there is some tendency to overemphasize rate regulation because it makes headlines and touches on the sensitive pocketbook nerve of the unsuspecting public. Actually, the typical regulatory commission spends about half, if not more,

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of its time and attention on other forms of regulation, such as certificate matters. Some of the non-rate matters are continuing. By that I mean they go on all the time and are not invoked just for some particular case, involving some particular company, as happens in a rate case. Accounting regulation, the examination of reports and service and safety standards go on all the time. A utility's rates, on the other hand, are only called into question where there is a rate case—when the utility wants to change its rates, or when the commission or some complainant wants to change them.

Formula for Rate Case

Now to dispose of the rate regulatory aspect as quickly as possible, I have reduced the entire rate case to a formula. I have found this very useful in teaching the subject. True, I usually have some visual aids and illustrations to show the inter-relationship between the different elements of the case more clearly. But I think a simple statement of the formula will suffice, here. Remember, I did not invent or discover this formula. It has been used (without calling it by name) in just about every major contested rate case for the last 50 years or more. All I have done, here, is to bring the component factors together in graphic form for easier understanding.

Now, here are the values of the formula. Let us assume that:

A is the total plant investment.
B is "accrued" or past depreciation.
C is the rate base.
D is the return or profit.
E is the sum of all the proper operating expenses such as payroll, taxes, annual depreciation, materials, etc.
F is the over-all revenue requirement.
G is the rate structure.

Test Adequacy of Rates

As a second step, let us apply these values in such a way as to test the adequacy of the rate structure, which is, after all, what every rate case is all about.

First there is the valuation which is expressed like this: A—B=C.

Next, there is the return, expressed like this: C x % (whatever percent is allowed) = D.

Next, we find the over-all revenue requirement. And we do it like this: D+E=F.

Finally, we get to the end-result—the reasonable rate, which is expressed: F=G.

Apply that formula to any rate case on earth, fill in the dollar amount, and you get the answer. Remember, F must equal G, or the rate must be changed. If it turns out that F is more than G, then a rate increase is indicated. Contrariwise, if F is less than G, a rate reduction is in order. Whatever is done should finally bring F into balance with G, which is the whole purpose of the case.

Original Cost or Fair Value

Remember also that this formula is the same whether the utility's property is valued at original cost or present fair value. I am not going into that, not only because it is a very complicated controversy, but also because there is not much we can do about it.

Suffice it to say that about two-thirds of the states still insist on original cost valuation in determining the rate base—mainly because it is easier to determine. About one-third of the states, including some very big and important ones, and including a tier of states stretching from Pennsylvania through the Middle West area—Ohio, Indiana, Illinois, Minnesota, and Nebraska (for telephones), Kansas and

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Missouri—require either reproduction cost or some consideration of present value as compared with original cost. I would say that the trend, if any, is back towards present fair value, even if it is in the minority. The reason, of course, is continued inflation. About a half-dozen states have switched over from cost to value since the end of World War II and the Korean War, because the courts have recognized the inequity of strict adherence to an original cost rate base in the presence of steadily and steeply rising prices.

Coverage of Rate "Umbrella"

To repeat my earlier reference to the formula, in any rate case, the whole idea is to adjust the coverage of the rate "umbrella"—the rate structure—to fit the extent of the revenue requirements. Where, in a utility rate case, it can be shown that the total of these expenses—plus the return allowance—have grown to the extent that they are no longer covered by the umbrella, then the regulatory authority must allow a bigger umbrella—meaning a rate increase. Where, on the other hand, the umbrella is found to provide more than the necessary coverage of the revenue requirements, a smaller umbrella, a rate reduction, is indicated.

I cannot, as a practical matter, go into the various relationships which have grown up between the modern rate case presentation and public relations people. I can only say that they are becoming increasingly important. Even a simple rate increase case these days requires a year of preparation and the public relations effort should be in there from the very start, preparing the way, cultivating public opinion, long before the application is filed and all during the presentation and even after the case is decided. It is a demanding task, and it grows more so all the time. Most of all it demands an understanding on the part of the public relations people to know how regulation works, or else they will not understand themselves what they are talking about and writing about.

Must Correct Fallacies

Some of the things, for example, that public relations people must correct are the fallacies and misunderstanding which have grown up like weeds in the public mind and among newspaper people and others about regulation. I will mention only one, but there are many. Surely, you have heard from time to time the old cliche that a utility is guaranteed a profit, a return. This is absolutely false, of course. We must consider the return allowance the same way we consider a fishing or a hunting license. It is simply the right, authorized by the state commission, for the utility to earn a given profit if it can do so by its own efforts. When you get a hunting license, the state does not guarantee that you are going to shoot any game. It simply makes it legal if you do shoot some, if you can. Moreover, there is usually a limit on the amount of game you can shoot. It is the same way with the rate of return. There is a limit, a ceiling, but no guarantee.

I would like to say one final word about regulation as an institution. We all have a stake in this. I do not think it is generally realized how much the regulatory commissions stand as a bulwark between utilities and public ownership. Eighty years ago, after Bell invented the telephone and Edison had opened his Pearl Street electric plant in New York, and the old manufactured gas companies were expanding, utilities were confronted with a very critical fork in the road. Obviously, the public would never have permitted them to go on as private competitive enterprises without regulation. There were two alternatives: Public ownership or regulation. All over Europe, they took the left fork—public ownership. Here in the United States and to some extent in Canada, we took the right fork—private enterprise—subject to regulation. Which is better, which has resulted in more benefits for more people. You need only look at the results to answer that question.

But regulation did not spring full blown from anybody's theory. It was hammered out by trial and error, by laws, by decisions, until today we know that it works. It is still the best way we know how to conduct these essential enterprises with full confidence of the public that their rights, as consumers, as investors, as members of the general public, are being protected. This is regulation and the day it fails and falters, that is the day you will have things like the Mexican expropriation, or confiscation by the likes of Peron in Argentina, or Castro in Cuba, happening right here in the United States. So, I say, let us protect regulation because regulation certainly protects the utility industry.

Basic Principles

"A State, to prosper, must be built on foundations of a moral character; and this character is the principal element of its strength and the only guarantee of its permanence and prosperity."—J. CURRIE.

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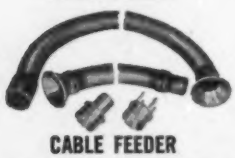
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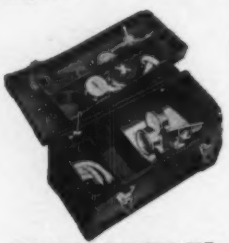
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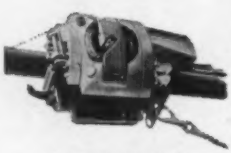
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PERSONNEL

Continued from page 27

the cases of frequent job changes by an individual, he is a person who has proven unsatisfactory in many other firms.

It's always good to remember that top-notch employes are so valuable that very few companies are going to willingly dispense with their services.

(8) *A defeatist attitude may be a tip-off to an undesirable employe.* If interview questioning has any depth whatsoever, this type of attitude is sure to crop up through the use of a leading question or two. It can almost never be spotted where only written questions are presented job applicants and little personal interviewing is done.

This brings up a most important point—"bad apples" invariably get by the best planned questionnaire. Dependence solely on it may allow problem workers to slip through. So, make sure the individual applying for a job not only completes a questionnaire but is interviewed before being hired.

Following are some other suggestions for screening prospective employes.

Put individuals suspected of being "problem children" on a trial run on the job even if merely for a single day. This is especially true if the foreman or superintendent has the slightest amount of ability to measure a man's personality. The foreman and fellow workers can often detect traits in an applicant which that individual can skillfully hide from any personnel department interviewer.

Use a printed "problem" or what-would-you-do series of questions designed to uncover maladjustments, in addition to the regular informational questionnaire. Of course the applicant will be on guard, but even then, if he is an unstable individual, hints of this type of personality will often be revealed by such a questionnaire.

The difference between this and conventional questionnaires is that spotting the maladjusted is seldom made a part of ordinary employment forms. When elements designed to secure personality information are inserted, the questionnaire becomes a better tool.

If an individual is a border-line case, run a credit bureau check on him. The fee involved will often cover data such as a record of garnishments which will reveal a very unstable personality.

Lastly, encourage the individual to talk and ask questions. As has been

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stated many times before, the man who evidences great concern over "fringe benefits" with respect to a job may be suspected of lack of true job interest. The tone of such an individual's questions and comments can also be a tip-off to such persons as an "agitator" or "gold-brick."

ALASKAN COMPANIES READY TO SERVE

Continued from page 26

companies came into being. In the last few years, increasing demands for service due to the population growth have brought added expansion and financial problems for most all the companies.

Meanwhile, some Independents with great faith in the future have established exchanges in small towns and isolated settlements. Subscribers are few. But they will be ready to serve the people when they come—and they are coming. Since distances are so great in the 49th state, and with many communities without highways to the outside world, the telephone is the people's most treasured facility.

As a result, Alaska is known as the "talkingest" state in the union and toll records prove it to be true. Long distance income furnishes many of the telephone companies their main source of revenue and toll income is growing steadily. With new equipment and dial service everywhere, subscribers can reach neighbors or any place in the nation and the world in a matter of minutes. The transmission to and from the farthest outpost is perfect.

Long distance service is provided in, out and within Alaska by the U. S. Army Alaska Communications System (ACS), the service being furnished over land lines, microwave and submarine cable. The ACS, actually a division of the U. S. Army Signal Corps, began in 1900 by establishing telegraph; then later it provided telephone communications between the outlying military posts. It erected line and cable systems over rugged, virgin territory while wireless was used in impassible areas.

In 1903-04 an Army ship laid cable stretching from Seattle to Sitka, Juneau and Valdez. Unforeseen interferences with the service occurred often. More than once a moose became entangled in the wires and tore them down. At sea a large humpback whale in some manner wound the cable around its body and died. When decomposition set in the chemical reaction proved too much for even the stoutest cable and the circuit quietly expired in its watery grave.

Rapid expansion in the system did not take place until 1940 when war clouds began to form. Within a comparatively short time, Alaska was covered like a blanket with military telephone and wireless means of communication. When the war came, the state was an armed fortress and it was ready. In post-war years the growth of the system continued, and in 1947 ACS began furnishing land line communication facilities to privately owned companies. At about this time ship-to-shore radio was also established in the far north. A big step was taken in 1956 when the American Telephone & Telegraph Co., cooperating with ACS, laid twin deep sea cables between Port Angeles, Wash., not far from Seattle, and Ketchikan. These connect with central Alaska circuits through Canadian land lines.

Next the cold war began, which necessitated additional communication facilities. White Alice came into being to furnish service to all government agencies operating in Alaska. Today the network is operated and maintained by RCA. The system utilitizes the most modern methods of radio transmission to service the remote, sparsely populated northern area of the 49th state. All of this tremendous extension interconnects at two large ACS toll centers in Fairbanks and Anchorage. It provides service from the most remote outposts and settlements to the other 49 states, to Canada and the world. It is routed via microwave, then by submarine cable or over land lines along the Alaskan Highway.

ACS now has 48 widely separated installations in this vast area with 24 being located in the larger population centers. Supplementing this network are 300 "bush" stations which provide the only means of communication in tiny, isolated settlements. Many are operated by the state of Alaska and the Bureau of Indian Affairs.

Today the DEW Line (Distant Early Warning) safeguards America. Its chain of radar stations will flash warnings to a data center whenever an aircraft or air breathing missile comes into its electronic sights. These units, extending for 4,500 miles along the 70th parallel between Cape Lisburne in Alaska to Iceland, went into full operation recently.

With the granting of statehood to Alaska the question inevitably arose as to whether the government should continue to operate the communications system there. The Department of Defense has stated that if private

enterprise will furnish such service they would be willing to dispose of the entire ACS. Legislation has been introduced in Congress to provide for disposal of the government owned long line facilities. Meanwhile ACS continues to give government agencies and the public top communication service and will keep on doing so until private operators purchase the property.

NATION'S CAPITAL

Continued from page 17

homes have television sets than have indoor plumbing facilities.)

Strumming the familiar cord which has been the mainstay of his running contest with broadcasters, Minow said that increasing population, coupled with the limited TV facilities, means that the programs viewed by more and more Americans are controlled by relatively fewer and fewer competing TV outlets.

The move by Minow indicates that he plans to aggressively pursue the duties of his agency. There will no doubt be considerable opposition to the proposal, but the young FCC chairman has already demonstrated that he does not shy away from a fight.

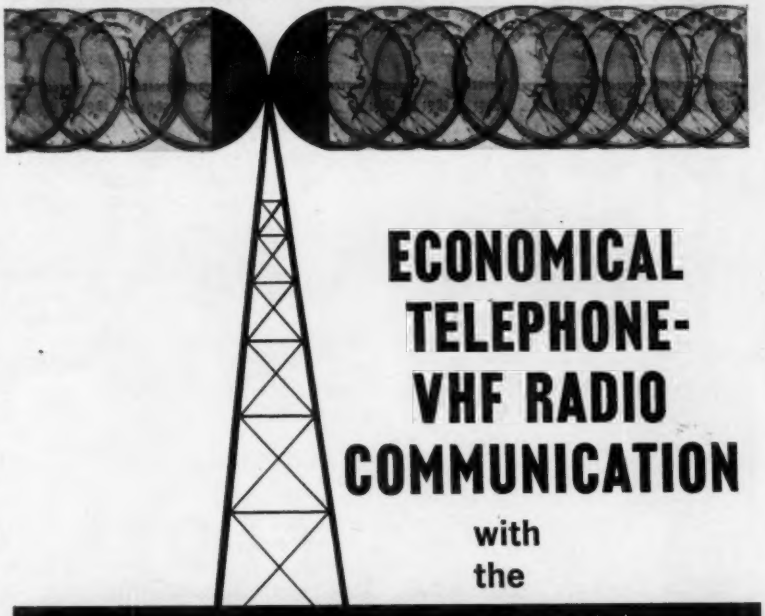
THERE IS considerable merit in his plan. Obviously, it would be a boon to educational TV stations, but it has tremendous commercial potential also. Numerous commercial stations which attempted to operate on the UHF band have gone out of business. The limited number of sets in circulation which could receive their programs meant fewer viewers. Advertisers, the "art patrons" which make commercial television possible, are interested in the number of viewers in a station's market. Therefore, they didn't support these stations and the stations went bankrupt.

If successful, the Minow plan could revolutionize the television industry and in the process broaden the business potential of the industry's handmaidens—telephone companies.

Telephone Aids Medical Science

A new system has been instituted in Washington to assist doctors throughout the country in prescribing drugs. "Mediphone," as the new drug information service is called, is designed to give doctors anywhere in the nation rapid, up-to-date information on what various medicines can and cannot do. Under the system a doctor places a call to a certain telephone number in Washington, D. C., at any time during the day or night and

ANOTHER MONEY SAVING IDEA FROM LYNCH!



Now you can economically provide direct telephone-radio communication from central office to mobile VHF units via microwave with the LYNCH COMMUNICATION CHANNEL FOR MOBILE RADIO.

The Lynch B910 Communication Channel for Mobile Radio provides the keying control unit to operate a remote, unattended VHF base station, a solid-state multiplexing channel to transmit voice and keying information, an individual group modem and a 48-volt DC battery-operated power supply for base operation in only 7 inches of rack space.

LYNCH COMMUNICATION CHANNEL TERMINAL FOR MOBILE RADIO
$1715.00 f.o.b. factory.

This communication package is only one of the many new features of the Lynch B910 solid-state multiplexing system. It also may be expanded from 12 to 600 channels, with economical dropout and reinsert provisions, along your right-of-way.

For the complete money saving story on the Lynch B910 solid-state multiplexing system, call or write your nearest Graybar representative or contact:

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LYNCH COMMUNICATION SYSTEMS INC.

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Distributed by GraybaR

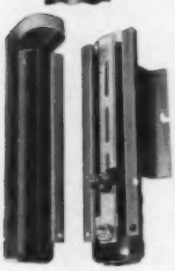
Contact your Graybar Representative or call us direct for complete information.

7470

Exclusive!

PLASTIC FINISH *

Catalog No. B12. Patented Buried Cable Terminal — 12 pair termination. Same basic design in larger capacities—Catalog Nos. B36, B60.



Catalog No. 4PM. Pole mounted Buried Wire Terminal. Also available in pedestal mounted version —Catalog No. 4B.

3 PROTECTIVE COATINGS

Exclusive three-coat protection assures longer life, less maintenance, rugged resistance to scratching and chipping. This is another practical reason why *UTILITY* MEANS *QUALITY* in buried cable terminals and equipment. You can pay more—but you can't buy better.

Phone your distributor or call

UTILITY PRODUCTS CO.

3111 W. Mill Road, Milwaukee 9, Wisconsin
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asks about the drug in which he is interested. One of the staff doctors at the firm's Washington headquarters taps the information in the push-button library which consists of 15,000 cards containing detailed data on nearly 9,000 drugs. The data is then passed on to the inquiring physician.

Doctors pay $15 per year for the service and an additional $3.00 per call if they desire a written report on the particular drug to follow up the phone call.

The first call using the new service came from Dr. Leonard W. Larson of Bismarck, N. D., current president of the American Medical Association, who said the plan will be a tremendous help to doctors, particularly those in rural areas.

TVA Criticized

The Tennessee Valley Authority, which plans to sell 45 million dollars worth of revenue bonds this month to finance the construction of generating and transmission facilities, has come in for criticism lately from several quarters.

Former TVA Chairman David E. Lilienthal stated that TVA is suffering from "hardening of the imaginative arteries." Senator Cooper (R., Ky.) has charged that TVA ignores "the need for regional development." In an editorial, the St. Louis *Post-Dispatch* noted that TVA has been coasting on the momentum it worked up in the first few years and in the process has become "more concerned with the favorable balance sheets than with what it can do for people."

The current financial transaction will mark the third borrowing under the 750-million-dollar authorization granted under the TVA act and will increase the amount of the public debt to 145 million dollars. The new borrowing will finance 3,477,200 kilowatts of installed capacity which is already under construction.

Obituary

B. C. Probasco, 54 manager, Telephone Division, California Water & Telephone Co., Monrovia, died in Arcadia, Cal., on Jan. 7. His death was caused by a brain tumor.

Born in Pleasanton, Kan., his career began at the age of 18, when he went to work as a groundman for the Southwestern Bell Telephone Co., in Kansas. He later served this company as a lineman and cable splicer.

In 1930, Mr. Probasco joined the Kansas Telephone Co., which he served as local manager for three of the company's offices.

Following a two-year sojourn with the United Telephone Co., in Missouri,

B. C. PROBASCO

he returned to Kansas Telephone Co. as plant superintendent, and later became general superintendent of outside plant activities.

Mr. Probasco served the Army Signal Corps with distinction during World War II. He entered the service as a lieutenant, and after four years of service, most of it in the South Pacific as the commander of a large communications installation, he was discharged in 1946 as a lieutenant colonel.

He joined California Water & Telephone Co. in 1946, and became district manager of the company's San Fernando exchange in 1948.

In this capacity, he played an important part in meeting CW&T's responsibilities associated with the population explosion in the San Fernando area.

Mr. Probasco combined his talent as a coordinator with outstanding admin-

Broad Political View

"A kind of schizophrenia seems to overtake many business people in their approach to government. They cry government interference when laws are passed affecting their companies and any of the things they want to do. But just as loudly they cry, there ought to be a 'law' to keep the other fellow from doing what they don't want him to do. . .

"There is no reason whatsoever for the business man to disenfranchise himself by turning his back on any kind of participation in political affairs just because he happens to be a businessman"—Thomas B. Reid, manager, civic and governmental affairs, Ford Motor Company.

istrative capability in meeting the numerous obstacles and challenges in the booming San Fernando area.

He was appointed division manager of all the California Water & Telephone Co.'s telephone properties in March of 1960.

Mr. Probasco is survived by the widow, Glenna, of Sierra Madre; his mother, Mrs. Laura Probasco of Pleasanton, Kan.; and by a stepson, Barry Thurston.

Motel Can Page Guests Doing Business in Denver

A distinctive attraction for executive-type guests which recently went into service at the Malibu Motel, Denver, Colo., is a paging system which functions wherever the guest may be.

Located near the Denver municipal airport, the Malibu is making a concentrated drive to attract businessmen-patrons who travel by air. In assessing services which he felt that executive-level businessmen would appreciate, Ralph Hinkson Sr., Malibu owner, was reminded of many situations in which a businessman with only a few hours in Denver was tied down by the necessity of waiting for a telephone call. Frequently, a businessman with scheduled appointments in Denver would be awaiting instructions via long-distance telephone, and would waste much of the short amount of time available to him when a call was delayed for one reason or another.

Now, to solve this problem and to allow every businessman-patron to go ahead about his business in the security that he won't miss an important telephone call, the Malibu is offering "electronic paging." As the plan operates, the guest pays $3.00 a day for a small pocket receiver, about the size of a transistor radio and which emits a loud buzz whenever an alerting signal is sent out from the Malibu office. Then, it is only necessary for the user to step to the nearest telephone and call the Malibu, where he will be patched into his caller through the motel switchboard.

Begun on an experimental basis in early December, the electronic paging system was an immediate success with all three of the units in continuous use, day after day, through most of December. Planning to add more such paging units, the big Denver motel has handled as many as 10 calls for guests, who are thoroughly relieved to know that they can go ahead with business, knowing that any incoming telephone call will result in a buzz alarm whether they are riding in a taxi, at a luncheon table, walking along the street, or seated in an associate's office.

CEECO

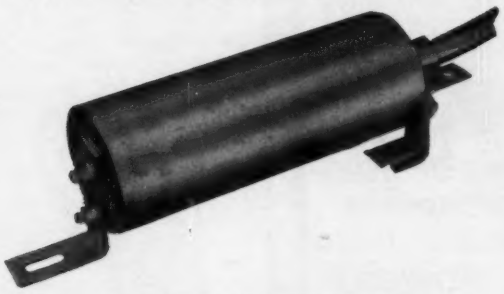
CEECO TYPE C125

CEECO

GALVANIZED STEEL CASE ASSEMBLIES

FOR AERIAL (POLE MOUNTING).

CONTAINING FOUR TO FOUR HUNDRED SIXTY UNITS.



- LEAD STUB ASSEMBLIES ARE PRESSURIZED
- PLASTIC STUB ASSEMBLIES ARE SEALED IN THERMOPLASTIC COMPOUND TO INSURE PROTECTION FROM MOISTURE.

These assemblies can be equipped with loading coils, capacitors, inductors and MF units.

Write us for assistance on your loading problems.

CEECO Loading Coils are sold by your telephone equipment supplier.

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For Every Application

AERIAL AND DUCT

TYPE 200

Specifically designed for use aerially supported by messenger or underground in ducts.

Conforms to REA Specification PE-22 and IPCEA Type 1 S-56-434.

Available in No. 19, 22, 24 and 26 AWG from 6 to 400 pairs.

Fully color coded with all pairs guaranteed.

Longitudinal 8 mil aluminum shield corrugated on large diameter cables for flexibility.

Black polyethylene outer sheath.

THE PLASTIC WIRE & CABLE CORPORATION

JEWETT CITY, CONN.

BE SU-RRR-E!

Make SCHAUER your source for dependable DC POWER!

SCHAUER is recognized by the Telephone Industry throughout the world as a leading manufacturer of battery eliminators and battery chargers for almost every DC power requirement. You save with Schauer—on low first cost, low operating cost, and reliable service. See your Jobber or write for Bulletin No. 1470.

Model PA-05004
Schauer Battery Eliminator

Here's a sure SCHAUER power source for the operator's circuit on magneto switchboards

Schauer Type PA-05004 Battery Eliminator delivers constant, hum-free direct current to the operator's circuit. Equipped with relay for automatically transferring power to stand-by dry cells in the event of AC failure. Standard capacity is 4 volts DC at 0.5 amps. Steel case, for wall mounting is 5½"x6¼"x4".

Rectifier Division
SCHAUER
MANUFACTURING CORP.
4514 Alpine Ave., Cincinnati 42, O.

Rochester (N.Y.) Company Promotes Burrows, Keller

Lawrence A. Burrows, former district plant superintendent-east, has been appointed commercial district manager-suburban for the Rochester (N.Y.) Telephone Corp. At the same time, Raymond H. Keller was promoted to district plant superintendent-east from his previous post as service manager-east. The appointments were announced on Jan. 10 by George S. Beinetti, senior vice president for operations.

L. A. BURROWS

Mr. Burrows is a Rochester native and a graduate of Cook Academy in Montour Falls, N. Y. He attended Columbia University and the Rochester Institute of Technology. He started with Rochester Telephone as a laborer in 1929, and held several positions in the plant department before becoming foreman in 1957. He was promoted to district plant superintendent in 1959. During the war, Mr. Burrows served as an Air Force cadet, pilot and test pilot. He is now a major and the communications officer of the 27th Armored Division Artillery, the New York State National Guard.

Mr. Keller is also a native of Rochester and is a graduate of Aquinas Institute. He later attended Rochester Institute of Technology and joined Rochester Telephone in 1937 as a messenger. He held several positions in the plant department before becoming supervising foreman in 1955 and service manager in 1959. During World War II, Mr. Keller spent 52 months with armored divisions and the Air Force. As a technical sergeant he was engineer on a B-24 bomber and was shot down over Germany on his 17th mission. The last eight months of his service were spent as a prisoner of war in Germany.

R. H. KELLER

In his new position, Mr. Burrows will be responsible for the sale of telephone equipment and for customer relations outside the Rochester exchange area, supervising the business offices in Canandaigua and Warsaw.

Mr. Keller will be responsible for the installation and repair of telephone equipment and the operation and maintenance of dial central offices in the Rochester exchange area, east of the Genesee River.

Pacific T&T Elects Hull Operating Vice President

Jerome W. Hull has been elected operating vice president and a director of Pacific Telephone & Telegraph Co. by the company's board of directors.

He replaces Lowell F. Wingert, who recently became a vice president with American Telephone & Telegraph Co.

Mr. Hull joined the company as a clerk in Los Angeles in 1935, immediately after his graduation from Occidental College. During the next 16 years he held a variety of assignments in the company's commercial department in southern California.

At various times during this period he was the company's commercial manager in San Diego, Pasadena, Alhambra and Los Angeles.

He was serving as district commercial manager in Santa Ana in 1951, when he accepted a post as business office engineer with AT&T.

After returning to California for other assignments in San Francisco, he was named vice president and general manager in charge of the company's operations headquartered in Sacramento in 1959.

Master Self

Every man carries with him the world in which he must live.—F. Marion Crawford.

How to
save time and simplify the installation of Figure 8 cable

Fact: By using Strandvise® in deadending, you need free only a minimum length of messenger . . . *12 inches less than some other methods.*

Fact: Reliable's No. 5582 all stainless steel Tangent Support, with separate clamping plates, offers 2 options for use: (1) You can leave the "J" hook in place permanently, or (2) Use the "J" hook as a stringing aid only and reuse it later on other jobs.

Fact: By using Strandlink® to splice the messenger, only a short length of strand must be bared . . . *27 inches less than some other methods.*

Fact: With Strandvise, any undesirable twist in the cable can be removed before installing terminal — simply turn the Strandvise tube in its yoke.

Fact: Reliable's No. 5577 Drop Wire Span Clamp will hold 1 to 3 mid-span drops under full stringing tension, plus wind and ice loading. A specially designed groove in the clamp protects the polyethylene web while providing a secure grip over the messenger jacket.

Fact: Strandvise's short length allows placement of terminal at minimum standard distance from the pole . . . *14 inches less than some other methods.*

Fact: Reliable's 100MA and 200M Ready Access Cable Terminals afford maximum vertical terminal block and loading coil mounting space. The inner sheath clamp provides a positive mechanical/electrical bond and easy installation.

Fact: The Strandvise feed-thru feature eliminates the need for clearance space, as in wrapping. The ground wire can be attached *right at the pole* and not 24 or more inches away from the pole.

In fact: Contact your Reliable representative or distributor and get all the details on our complete line of accessories for Figure 8 installations. For easy reference, send for the latest bulletin on all Reliable products used with Figure 8 cable.

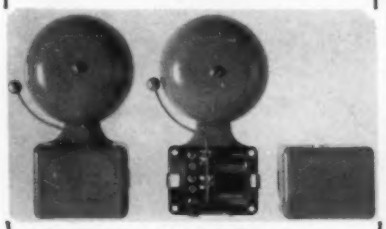
Reliable ELECTRIC COMPANY Franklin Park, Illinois

A Symbol of Integrity Since 1909

WHAT'S NEW AT

SUTTLE

3"–SE-7 BELLS!
LOUD, CLEAR RING
A-C or D-C Operation!



3" SE-7 BELL (cover on) 3" SE-7 BELL (cover off)

BRAND NEW from SUTTLE — A complete line of SE-7 3" Bells, A-C or D-C operated. Loud, clear ringing 3" gong and non-shorting plastic cover are finished in the modern blue-beige color. Equipped with heavy silver contacts and reed mounted armature with a flat retractile spring and stop.

Select Now the type you need!

Available in many operating voltages:

	Approx. Resistance ohms	D-C Min.	D-C Max.	A.C. 60 cycle Min.	A.C. 60 cycle Max.
SE-7A	270.0	14	40	25	50
SE-7C	2.6	2	5	4	9
SE-7E	105.0	10	20	18	30
SE-7F	680.0	24	60	35	60

Price: 1-9 4.45 ea. 10 & over 4.05 ea.

Order from Suttle or other distributors

SUTTLE EQUIPMENT CORP.

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Lawrenceville 782

135 S. La Salle St., Chicago 3, Illinois
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Sylvania Constructs Antenna For Army's ADVENT Project

The joining of an 18,000-pound dish-type antenna and its three-story pedestal on Dec. 31, completed the final major component of the first of two ground antenna stations for the U. S. Army's ADVENT communications satellite program (See cut). The work was completed by Sylvania Electric Products, Inc., a subsidiary of General Telephone & Electronics Corp.

The object of the ADVENT program is to prove the feasibility of a military space communication system that would produce virtually instantaneous transmission of both voice and radio-teletype traffic on a global basis by use of satellites in 22,300-mile-high synchronous, equatorial orbit.

The antennas at both Fort Dix, N. J. and Camp Roberts, Cal., are designed primarily for advanced space communications in the super-high-frequency range. They will be required to track orbiting ADVENT satellites to within 24/1000ths of a degree, an accuracy far in excess of any known comparable equipment. If off by one degree, the axis of the tracking apparatus would miss the satellite by 385 miles, at the synchronous satellite altitude of 22,300 miles.

Sylvania Electronic Systems, a major division of the company, is responsible for the development and installation of the operations facilities for ADVENT ground stations at both Fort Dix and Camp Roberts, with the exception of communications and telemetry electronics.

Universal, Yet Personal

"Originality is nothing but judicious imitation.—The most original writers borrowed one from another. The instruction we find in books is like fire. We fetch it from our neighbor's, kindle it at home, communicate it to others, and it becomes the property of all."—VOLTAIRE.

Ohio Bell Installer Saves Boy By Mouth-to-Mouth Aid

Quick action by an Ohio Bell Telephone Co. employe, Stephen A. Fisher of Cleveland, is reported recently to have saved the life of a four-year-old boy who had stopped breathing.

Mr. Fisher had entered the home of Charles C. Burnside to install a telephone, and was met by Mrs. Burnside with her unconscious son in her arms.

The installer hooked up an emergency handset and called the police; then, covering the boy with a blanket, he began administering mouth-to-mouth resuscitation.

The Burnside boy had begun breathing again by the time the police arrived and took the boy to the hospital.

Fisher, a married man and father of a two-year-old daughter, said this was his first such experience in his six-year employment with Ohio Bell. He commented, "I'm glad I took first aid training. I'm glad I was able to do something to help."

Book Reviews

"AMERICAN ELECTRICIANS' HANDBOOK, A REFERENCE BOOK FOR PRACTICAL ELECTRICAL WORKERS," eighth edition, edited by Clifford C. Carr and Terrell Croft; 1676 pages plus index; 1620 illustrations; 6 x 9; $17.50.

The "American Electricians' Handbook," eighth edition, is a comprehensive reference for practical electrical workers—such as engineers, electricians, linemen, operators, or superintendents—who deal with the design, installation, and maintenance of electrical installations and equipment. This compilation of helpful information on electrical equipment and materials is presented without the use of advanced mathematics and arranged to be as useful as possible for the intelligent selection, installation, maintenance, and operation of electrical equipment.

All sections of the new edition have been carefully revised to present up-to-date information for the selection and use of electrical conductors, switchgear, panelboards, protective devices, wiring materials, capacitors, batteries, rectifiers, transformers, generators, motors, lamps and lighting fixtures.

In accordance with the 1959 National Electric code, the book covers modern methods for the distribution and

use of electrical energy, both interior and exterior installations. Nearly all illustrations have been replaced in the new edition.

The late Clifford C. Carr, formerly assistant dean of Pratt Institute's School of Engineering, has been editor of the "American Electricians' Handbook" since the third edition was published in 1932. A graduate of the Rensselaer Polytechnic Institute, he had 41 years of experience in both the teaching of electrical engineering and technology and the design and selection of electrical equipment for electrical installations. A licensed professional engineer in New York State since 1937 and author of other electrical engineering text books, Mr. Carr was a member of the American Society of Engineering Education and associate member of the American Institute of Electrical Engineers.

This book can be purchased from TELEPHONY.

•

"BASIC RADIO," a six-volume course, by Marvin Tepper.

This six-volume "pictured-text" course on "Basic Radio" covers the fundamentals and circuitry of radio communications. While it stresses fundamentals, it does not neglect the practical. It teaches the student to put fundamental principles to work, to read schematics, to recognize circuits used in radio equipment, to understand electricity and magnetism.

In the development of the course, the student also becomes familiar with semiconductors and transistors and other applications and how they are used in radio. The course concludes with a thorough coverage of transmitters, antennas and transmission lines.

While the six-volumes collectively offer a complete and comprehensive course in radio communications, the course may be purchased in individual volumes covering specific areas of interest for the student, technician or hobbyist who may be interested in updating or improving his knowledge of any one given area of radio communications covered by the course.

This course is available as a six-volume set in paper, 776 pages, 6 inches x 9 inches, $13.85.

It is also available as six separate 6 x 9 volumes, soft cover, as follows:

Vol. 1 "DC Electricity," 144 pages, $2.70.

Vol. 2 "AC Electricity," 144 pages, $2.70.

Vol. 3 "Electron Tube Circuits," 144 pages, $2.70.

Vol. 4 "AM and FM Receivers," 128 pages, $2.50.

Vol. 5 "Transistors," 72 pages, $1.90.

NEW
HIGHWAY'S
"Hi-Arm"
Aerial Lift
Here's a "unitized" aerial lift — vehicle and lift in one unit and at a low price. The "Hi-Arm" is ideal for overhead work — easy to maneuver, compact, lightweight, flexible, truck-mounted, hydraulic. Available in three different sizes — 28', 32' and 36', with either single or tandem cab. The two-foot-square bucket has a 300-lb. capacity. Operator can step easily from cab to basket. Write for further information and specifications.
HIGHWAY
UTILITY DIVISION
HIGHWAY TRAILER INDUSTRIES, INC.
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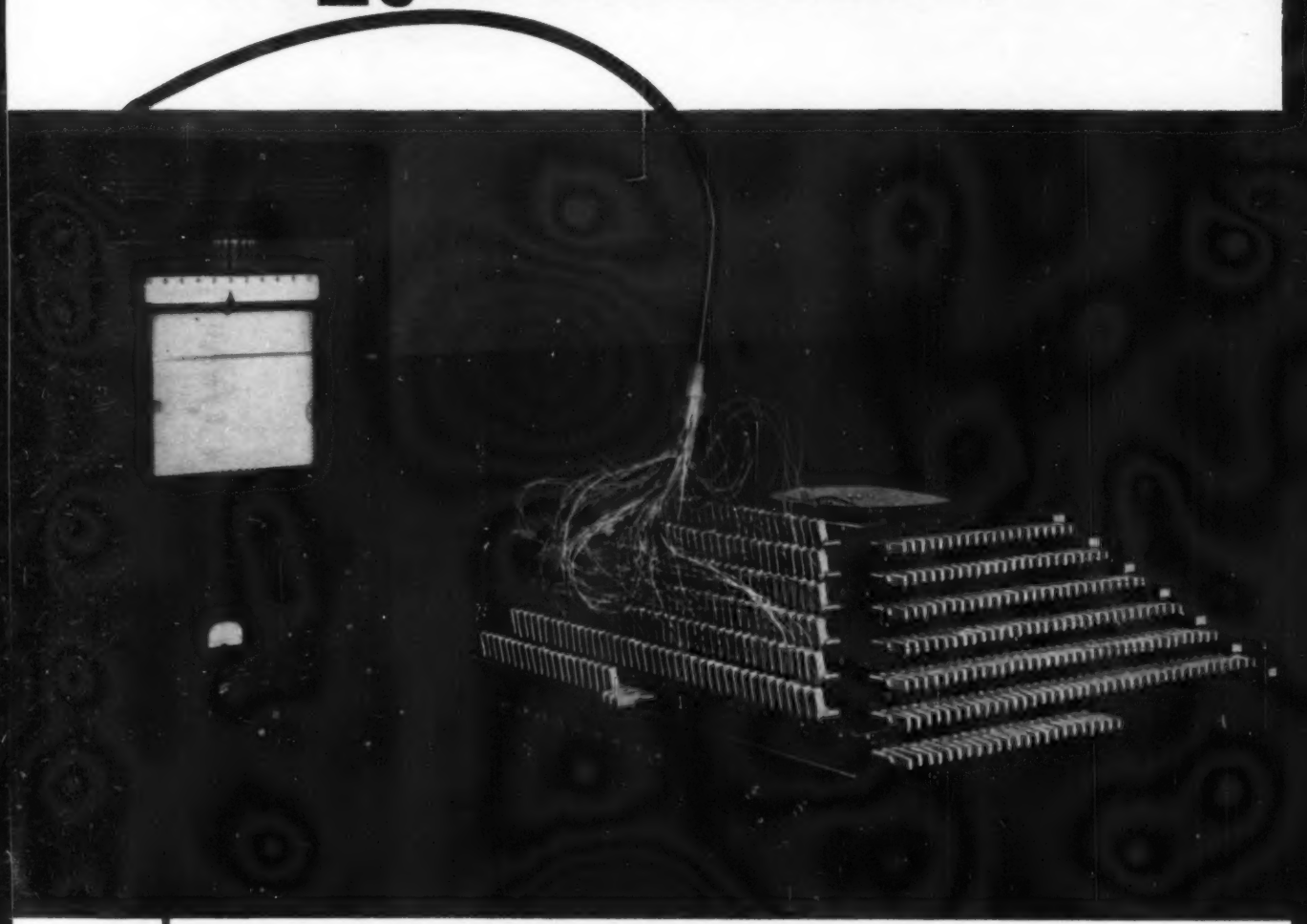
Manufacturers of: Public Utility Bodies • Earth-Boring Machines • Pole and Cable Reel Trailers • Side Boxes and G. S. Bodies • Winches • Power Take-Offs • Service Accessories • Commercial Trailers • Dry-Bulk Haulers • Cargo Containers • Land, Sea and Air.
SALES AND SERVICE IN PRINCIPAL CITIES

WIRELIABILITY *



THROUGH QUALITY CONTROL AT WHITNEY BLAKE

One of the key factors in the production of quality wire and cable here at Whitney Blake is our rigid quality control program.

Typical of the modern, precision equipment utilized to test Whitney Blake products is this Teletester. It verifies that all conductors in every length of TELECABLE leave the factory free from opens . . . grounds . . . crosses . . . shorts.

When you specify and buy Whitney Blake, you know that you're getting the finest performance-tested wire and cable available.

* **Your assurance of quality wire and cable performance—Today and Tomorrow—A product of Whitney Blake WIRESEARCH.**

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TELEPHONE
PRODUCTS OF
WHITNEY BLAKE
WIRESEARCH

TELECABLE®

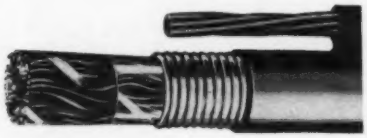
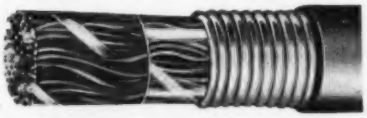


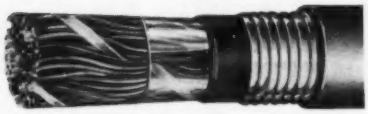
FIGURE 8 —
EXCHANGE AREA

Easy to install, as messenger is an integral part of the cable assembly. Offers the same service-free performance as all other WB Telecable.



AERIAL & DUCT — TYPE C

Designed and tested for long, quality performance under severe climatic conditions.



DIRECT BURIAL — TYPE DB

Made to last even under the most adverse soil conditions. A quality cable that you can bury and forget.

WRITE for any of the new Whitney Blake bulletins:
T-5 . . . TELECABLE
T-6 . . . Telephone Wire and Cable
T-8 . . . Figure 8 Distribution Wire

Vol. 6 "AM and FM Transmitters," 144 pages, $2.70.

All six volumes in a single cloth binding are also available for $14.85.

The set, or single volumes, are available from TELEPHONY.

Offers 4 Market Surveys Of W. Hemisphere Countries

Foreign market surveys on the sales of U. S. telecommunications equipment are now available on Bolivia, Chile, Mexico and Paraguay, the Business & Defense Services Administration of the U. S. Department of Commerce has announced.

The surveys may be purchased for 10 cents a copy from Commerce Department field offices or from the Sales & Distribution Section, Room 6317, U. S. Department of Commerce Bldg., Washington 25, D. C.

Major parts in the surveys are: domestic facilities, international facilities, maintenance of equipment, and market potential.

U. of Hawaii Announces Dates For Management Program

The University of Hawaii has announced that the ninth annual session of its Advanced Management Program will be held from July 9 to Aug. 18.

The staff is drawn entirely from the Harvard University Graduate School of Business Administration. The six-week program is a full-time study and discussion course. The class is limited to approximately 60 students.

Further information on the program can be obtained from B. M. Harloe, Director, Advanced Management Program, University of Hawaii, Honolulu 14, Hawaii.

North Electric Expands Marketing Setup

William Tucker, president and chairman of the board, North Electric Co. of Galion, O., announces the reorganization of several marketing arms, effective Jan. 1. A major shift is the establishment of a new Government and Defense Systems Division to complement the existing Telecom, Electronetics and Power Equipment Divisions. Total sales of the communications and control system firm are expected to approach 50 million dollars in 1962, Mr. Tucker said.

Heading up the new corporate adjunct is W. W. Crissinger, who, according to Mr. Tucker, "will assume this greater responsibility in recognition of the outstanding success Mr. Crissinger has had in military business as vice president Electronetics Division."

The new position and organization will permit greater concentration of

W. W. CRISSINGER

effort in vital military areas. The newly formed division will consist of sales, field engineering, tech rep and contract administration personnel and related supporting services. All offshore installation, service and maintenance work for government agencies will be the responsibility of Mr. Crissinger. He will also immediately assume responsibility for coordinating all phases of the 412-L electronic switching project throughout the remainder of the program.

S. M. HANLEY

The North Electric chief executive, in revealing this latest expansion, said, "With our advanced electronic switching technologies embodied in the USAF 412-L Air Weapons Control program about to become hardware in reality, and due to intensified military communications plans of the Defense Department, the opportunities for North Electric Co. to rapidly expand

R. E. PICKETT

J. F. DOLLAND

its volume of electronic work of this and similar scope are tremendous.

"This decision to obtain larger military volume requires greater concentration of management on this segment of our business and necessitates the aforementioned and other shifts in organization structure and executive responsibilities if we are to accomplish these and other objectives."

Other moves include S. M. Hanley, vice president, who will assume the additional responsibilities of vice president sales, with exclusive responsibility for all sales and research and development contracts for the Bell System and its subsidiaries, including Western Electric. Battery charger, power supply, rectifier, restrictor, and other telecommunications equipment sales in this area will now be under specific direction of Mr. Hanley.

Also, Robert E. Pickett has been promoted to the position of manager application engineering. Mr. Pickett has been acting in this assignment on a temporary basis since last June. A graduate of Carnegie Institute of Technology in 1950, Mr. Pickett has progressed in several responsibilities with the company, including R & D project engineer, systems design engineer, systems design project engineer, and manager Petrochemical sales.

L. R. Breese, chief electronetics engineer, Carl Freeman, chief telecom engineer, and J. M. Robinson, manager engineering components and standards, with their respective engineering organizations will report to Mr. Pickett, as will Edward Bauman, manager special product development.

J. F. Dolland, formerly vice president manufacturing, will assume the new title and responsibilities of vice president commercial sales. Mr. Dolland will be responsible for the marketing of all commercial systems and components now being sold by the Electronetics and Power Equipment Divisions, with the exception of IBM systems business. Lloyd Bender, senior vice president, will continue respon-

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sibility for the latter, as well as that of general manager power equipment division.

Ralph Parker, manager component sales; Carl Bartoseski, manager Paricode supervisory control sales; William Reagan, manager power equipment sales; and Howard Brewer, on special assignment, will each report to Mr. Dolland.

G&W Electric Names Booty Advertising-Promotion Manager

Roger Booty has been appointed manager, advertising and sales promotion by G&W Electric Specialty Co. Mr. Booty will have charge of advertising, publicity, and catalog work for all departments, including both switchgear and cable accessories.

ROGER BOOTY

He has been engaged in sales-promotion work at G&W for approximately a year. He was formerly assistant advertising manager at ITT-Kellogg.

Mr. Booty holds an electrical engineering degree granted in 1952 by Chicago Technical College.

He spent several years designing industrial-relay, telephone, and switch gear equipment at Automatic Electric Co. and at Kellogg before becoming engaged in sales engineering and sales promotion.

Union Carbide Plastics Names N. J. Region Office Manager

Robert J. Balthazar has been named office manager of the Moorestown, N. J. regional sales office of Union Carbide Plastics Co., Division of Union Carbide Corp. The announcement was made by V. L. Larson, sales manager —south Atlantic region.

Mr. Balthazar joined Union Carbide Plastics Company in 1947; he has since held several positions in the New York office sales organization. His most recent position was manager, sales service.

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Kelley Heads Acme Visible Records' Denver Office

A. Jack Kelley has been made branch manager of the new office of Acme Visible Records, Inc., located in Suite 1002-3, Guaranty Bank Bldg., Denver 2, Colo.

For the past eight years, Mr. Kelley has been district manager of the eight-state area comprising the territory served, in whole or in part, by Mountain States Telephone & Telegraph Co. In this capacity, he supervised all dealers, direct sales and government sales.

A. J. KELLEY

This new assignment permits Mr. Kelley to develop a local sales organization, while devoting his principal effort to Acme's Telephone System Division serving the Mountain States company and the Independents in Arizona, Colorado, Idaho, Montana, New Mexico, Utah and Wyoming.

Leckenby Gets Assignment As GD/T Product Analyst

John H. Leckenby has been appointed product analyst for the General Dynamics/Telecommunication department of plans and programs, according to announcement by Charles F. Cheney, department director.

Mr. Leckenby will determine product needs of the market, define these needs by preparing commercial specifications, and gather ideas for new Stromberg-Carlson products.

He has been with the company since 1957, and has served as a traffic engineer, systems analyst on electronic switching projects, and, most recently, as a staff engineer in engineering administration.

Mr. Leckenby was born in England, and attended Reading University for his technical education. He holds a final certificate in telephony from the City and Guilds of London, England.

J. H. LECKENBY

He entered the telephone business in 1936 in the engineering department of the British Post Office Telephone Service.

After four years service as an Air Ministry staff officer with British and American air forces in World War II, he returned to the B.P.O. as a traffic superintendent.

In 1953, Mr. Leckenby went to the Elyria (O.) Telephone Co. as traffic superintendent.

He also held an engineering position with the General Telephone Co. of Ohio at Marion, and was later traffic superintendent for the Northern Ohio Telephone Co. of Bellevue.

He is a member of the American Institute of Electrical Engineers.

G & W Appoints Stevens in N. Y. State; Bradley, in Pa., D. C.

C. V. Stevens, Inc., 5554 Main St., Buffalo 21, N. Y., has been appointed by G&W Electric Specialty Co. to act as its sales representative in the upper New York state region.

Salesmen covering Binghamton, Albany, Buffalo, Syracuse, and Rochester areas will be C. V. Stevens, G. A. Stumpf, and E. W. Baldock.

D. Knox Cooper of Cooper-Morgan, Inc. has been retained as a consultant on G&W products under the new sales arrangement.

The Bradley Co., Inc., long-time G&W sales representative in the Philadelphia and Washington, D. C. areas, has now divided into two companies for better handling of accounts. The Philadelphia organization will be known as Bradley Corp., with C. B. Broschart as president.

The Washington, D. C. organization will be known as Bradley Electro Sales Corp., with G. W. Schaffner as president.

These new companies will cover the

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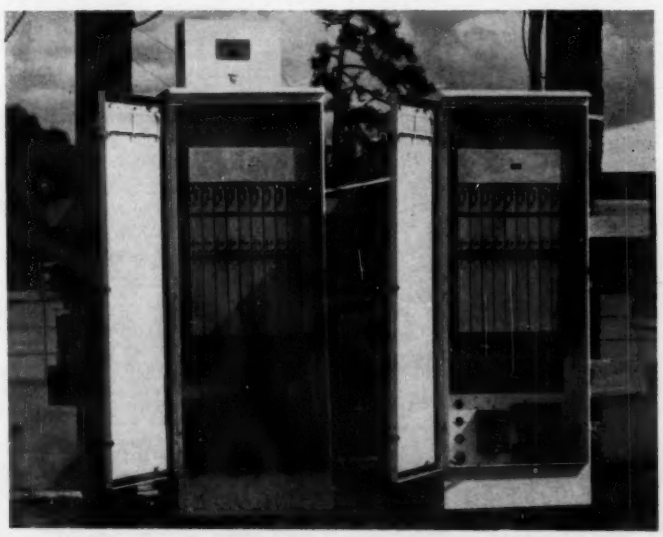
International Teletronics, Inc. provide complete carrier systems including both carrier equipment and special carrier designed conductor to permit the maximum carrier growth for both trunk and subscriber applications. Within the framework of the basic performance objective reliability, simplicity and economy were of paramount criteria, both in the evaluation of the original design and any succeeding improvements. The equipment cost was designed to be competitive with the physical facility for which it is intended to replace. Systems involving both carrier and conductor will carry a system guarantee for each project. Our complete engineering services are available upon request.

NOTE:
Type "X" equipment is also easily adaptable for low density microwave systems (to 80 channels) at a very low per channel cost.



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same areas as formerly served by the two sales offices, with the same personnel.

BPO Veteran Orchard Joins Lenkurt As Design Consultant

Henry John Orchard, a former principal scientific officer in the engineering department of the British Post Office, has joined Lenkurt Electric Co., Inc., as a network design and synthesis consultant.

In the communications industry, Mr. Orchard is generally ranked among the world's top 10 experts in network theory and design, Lenkurt reports.

H. J. ORCHARD

He has published a dozen scientific papers in this field and holds two British patents.

Mr. Orchard was previously employed for 22 years by the British Post Office, the operating organization of the telephone and telegraph system in the United Kingdom. There he served as a consultant to the research and development groups of the engineering department.

He received his bachelor and master of science degrees from the University of London. He is a member of the Institution of Electrical Engineers.

ITT Kellogg to Hold Carrier Training Sessions Nationwide

ITT Kellogg has initiated nationwide carrier training programs designed to augment public relations between operating telephone companies and their customers.

These technical training programs are aimed at developing and improving over-all transmission knowledge and the operational capabilities of specific equipment, along with routine maintenance and servicing techniques.

Telephone companies desiring to send personnel to either carrier or other schools listed below, should notify ITT Kellogg indicating their intentions and, if applicable, the number of personnel expected to attend.

Refer all inquiries to: ITT Kellogg, Training Department, 2912 Wake Forest Road, Raleigh, N. C. Attn: Don Kempf.

The 1962 training program schedule is as follows:

K31/32 Open Wire Carrier

Location:	*Date:*
Albuquerque, N. M.	Oct. 15-16-17
Bismarck, N. Dak.	Nov. 14-15-16
Boise, Ida.	May 15-16-17
Brownwood, Tex.	Jan. 16-17-18
Charleston, W. Va.	Dec. 10-11-12
Cheyenne, Wyo.	Jul. 11-12-13
Columbus, Ga.	Sep. 12-13-14
Des Moines, Ia.	Nov. 19-20-21
Kansas City, Kan.	Oct. 10-11-12
Little Rock, Ark.	Jan. 23-24-25
Madison, Wis.	Feb. 7-8-9
	Apr. 11-12-13
New Orleans, La.	Aug. 14-15-16
New York, N. Y.	Mar. 7-8-9
Raleigh, N. Car.	Jun. 4-5-6
	Oct. 29-30-31
San Francisco, Cal.	July 17-18-19
Seattle, Wash.	July 24-25-26
Sioux Falls, S. D.	May 9-10-11
Tampa, Fla.	Sept. 17-18-19
Terre Haute, Ind.	June 18-19-20

(Continued on page 55)

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C. M. Christiansen Co. — Northern White Cedar Poles, Pentachlorophenol treated. Plant and Yards, Phelps, Wis.

Eppinger & Russell Co., 80—8th Ave., New York 11, N. Y. Poles—Creosoted, Penta, Creo.—Penta. Plants: Norfolk Va., Eddington, Pa.

International Creosoting and Construction Co., Galveston, Texas—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

International Paper Co., Wood Preserving Division—926 Grand Avenue, Kansas City, Missouri—"LONG-BELL" pressure-treated Southern Pine and Douglas Fir Poles—Creosote or Penta.

Piedmont Wood Preserving Company—Creosoted and Creosote-Penta Treated Pine Poles. Plant Augusta, Georgia. Yards, Virginia, West Virginia and Connecticut. Address inquiries to Box 1662, Spartanburg, S. C.

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	Apr. 16-17-18-19
Memphis, Tenn.	June 12-13-14-15
Montreal or St. John, Canada	Mar. 12-13-14-15
Philadelphia, Pa.	Dec. 4-5-6-7
Raleigh, N. C.	Mar. 26-27-28-29
	Aug. 27-28-29-30

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Location: Raleigh, N. C.
Dates: Mar. 1, Jun. 7, Sep. 7, Nov. 7.

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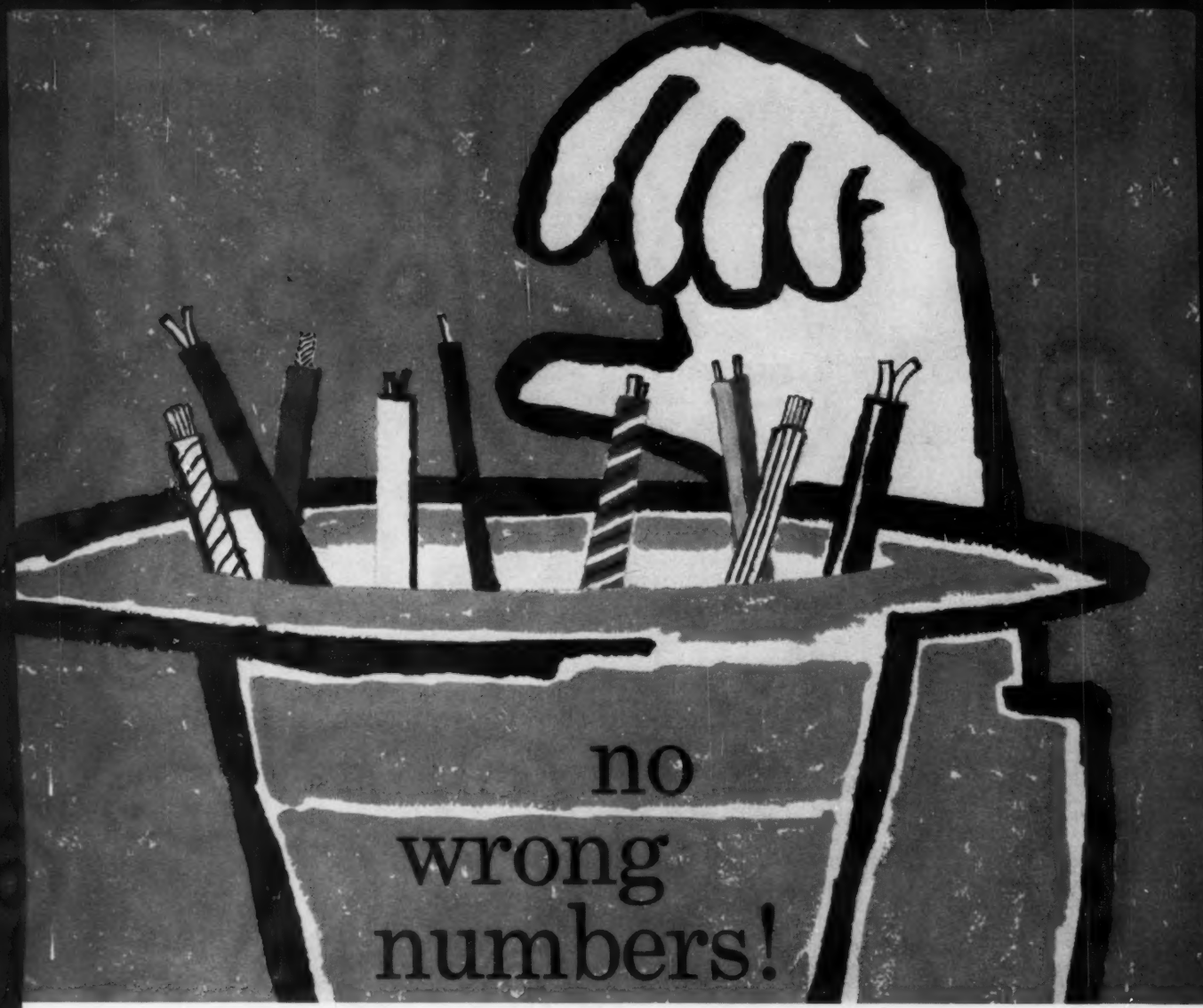

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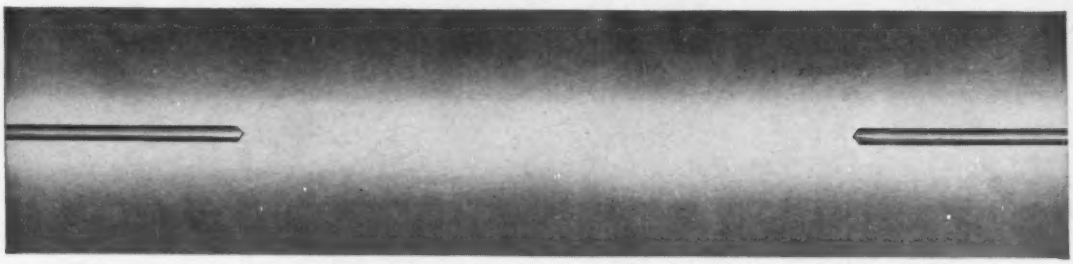

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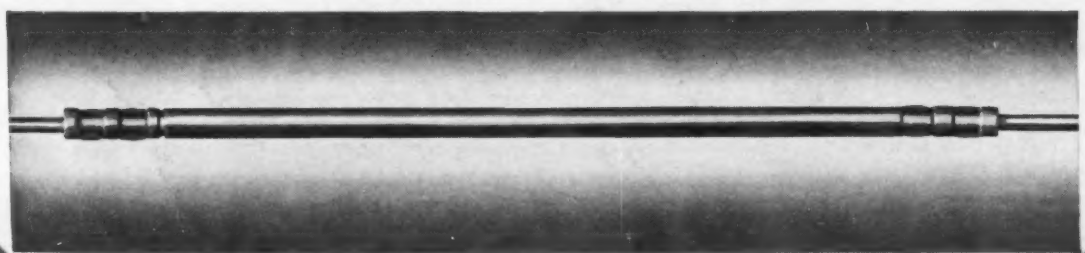

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